

CAREER & TECHNOLOGY STUDIES

AGRICULTURE

GUIDE TO STANDARDS AND IMPLEMENTATION

INTERIM 1994
(SEPTEMBER 1994 – SEPTEMBER 1997)
INCLUDES 1996 UPDATES

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Alberta
EDUCATION

CURRICULUM STANDARDS BRANCH

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This document was prepared for:

<i>Administrators</i>	✓
<i>Counsellors</i>	✓
<i>General Audience</i>	
<i>Parents</i>	
<i>Students</i>	
<i>Teachers</i>	✓

Program/Level: Career and Technology Studies/Secondary

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Every effort has been made to acknowledge original sources and comply with copyright regulations. Please notify Alberta Education if there are cases where this has not been done. Shaded areas within this document have been approved for optional implementation. Assessment conditions and criteria are in draft form and will be validated 1994-97.

SUMMARY OF CHANGES

This June 1996 version of the *Guide to Standards and Implementation* differs from the June 1995 version as follows:

Section A	No change
Section B	Updated Scope & Sequence
Section C	Minor edits to Planning for Instruction
Sections D, E, F	All conditions and criteria have been revised to include references to assessment tools and standards <i>with some modifications to specific learner expectations</i>
Section G	Assessment tools have been revised and expanded
Section H	Information on linkages and transitions have been updated and reorganized
Section I	Resource lists have been updated to include new resource approvals
Section J	Sample student learner guides have minor revisions, particularly to "HOW will your mark be determined?" and "WHICH resources may you use?"
Section K	Acknowledgments are not included in this version

In May 1997, the Guides to Standards and Implementation will be revised again in preparation for provincial implementation in September 1997.

Questions or comments about this Guide to Standards and Implementation are welcome and should be directed to:

Career and Technology Studies Unit, Curriculum Standards Branch, Alberta Education,
Devonian Building West, 11160 Jasper Avenue, Edmonton, Alberta, T5K 0L2.
Telephone: (403) 422-4872, Fax: (403) 422-0576

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CAREER AND TECHNOLOGY STUDIES

PROGRAM PHILOSOPHY/RATIONALE

Through Career and Technology Studies (CTS), secondary education in Alberta is responding to the many challenges of modern society, helping young people develop daily living skills, and nurturing a flexible, well-qualified work force.

In Canada's information society, characterized by rapid change in the social and economic environment, students must be confident in their ability to respond to change and successfully meet the challenges they face in their own personal and work lives. In particular, they must make decisions about what they will do when they finish high school. Many students will enter the work force, others will continue their education. All students face the challenges of growing independence and responsibility, and of entering the highly competitive workplace and/or post-secondary programs.

Secondary schools also face challenges. They must deliver, on a consistent basis, high quality, cost-effective programs that students, parents and community find credible and relevant.

CTS helps schools and students meet these challenges. Schools can respond more efficiently and effectively to student and community needs and expectations by using the opportunities in the CTS curriculum to design courses and access school, community and distance learning resources. Students can develop the confidence they need as they move into adult roles by assuming increased

responsibility for their learning; cultivating their individual talents, interests and abilities; and defining and acting on their goals.

As an important component of basic education in Alberta secondary schools, CTS promotes students' achievement by setting clear expectations and recognizing students' success. Students in CTS develop competencies—that is, the knowledge, skills and attitudes students must demonstrate, or what they know and can do.

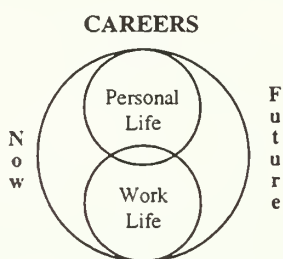
These competencies can be applied now and in the future as students make a smooth transition into adult roles in the family, community, workplace and/or further education. To help ensure this transition for students, clearly stated expectations and standards have been defined with the assistance of teachers, business and industry representatives and post-secondary educators.

CTS offers *all* students important learning opportunities. Regardless of the particular area of study chosen, students in CTS will:

- develop skills that they can apply in their daily lives now and in the future
- refine career-planning skills
- develop technology-related skills
- enhance employability skills
- apply and reinforce learnings developed in other subject areas.

In CTS, students build skills they can apply in their everyday lives. For example, in the CTS program, particularly at the introductory levels, students have the opportunity to improve their ability to make sound consumer decisions, and to appreciate environmental and safety precautions.

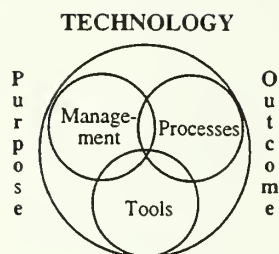
A career encompasses more than activities related to a person's job or occupation; it involves one's personal life in both local and global contexts; e.g., as a family member, a friend, a community volunteer, a citizen.



The integration of careers throughout the CTS program helps students make effective career decisions and target their efforts. Students in CTS will have the opportunity to expand their knowledge about careers, occupations and job opportunities and the education and/or training requirements involved. As well, they will recognize the need for lifelong learning.

Students in CTS will have the opportunity to use and apply technology and systems effectively and efficiently, which involves:

- a decision regarding which processes and procedures best suit the task at hand
- the appropriate selection and skilled use of the tools or resources that are available
- an assessment of and management of the impact the use of the technology may have on themselves, on others and on the environment.



Integrated throughout CTS are employability skills, those basic competencies that help students develop their personal management and social skills. Personal management skills are improved as students take increased responsibility for their learning, design innovative solutions to problems or challenges, and manage resources effectively and efficiently. Students' social skills improve through learning experiences that require them to work effectively with others, demonstrate teamwork and leadership, and maintain high standards in safety and accountability.

Further enhancing the employability skills, CTS reinforces and enhances learnings developed in core and other complementary courses. The curriculum emphasizes, as appropriate, the effective application of communication and numeracy skills.

Finally, in addition to the common outcomes described above, those students who focus on a particular area of study will develop career-specific competencies that support entry into the workplace and/or related post-secondary programs. Career-specific competencies can involve understanding and applying appropriate terminology, processes and technologies related to a specific career, occupation or job.

GENERAL LEARNER EXPECTATIONS

General learner expectations describe the basic competencies that are integrated throughout the CTS program.

Within an applied context that is relevant to personal goals, aptitudes and abilities, the student in Career and Technology Studies will:

- demonstrate the basic knowledge, skills and attitudes necessary for achievement and fulfillment in personal life
- develop an action plan that relates personal interests, abilities and aptitudes to career opportunities and requirements
- use technology effectively, linking and applying available tools, management and processes to produce a desired outcome
- develop personal management skills by:
 - linking theory and practice, using resources, tools, technology and processes responsibly and efficiently (managing learning)
 - applying effective and innovative decision-making and problem-solving strategies in the design, production, marketing and consumption of goods and services (being innovative)
 - selecting relevant, goal-related activities, ranking them in order of importance, allocating necessary time, and preparing and following schedules (managing resources)
- improve social interaction skills by:
 - demonstrating flexibility and cooperative work and communication behaviors (working with others)
 - participating as a team member by working cooperatively with others and contributing to the group with ideas, suggestions and effort (teamwork and leadership)
 - demonstrating high standards of diligence, attendance and punctuality, following safe procedures consistently, and recognizing and eliminating potential hazards (demonstrating responsibility)
- demonstrate appropriate verbal, written, composition, summarization and presentation skills
- use basic computation and measurement principles accurately and efficiently.

PROGRAM ORGANIZATION

CURRICULUM STRUCTURE

Career and Technology Studies is organized into *strands* and *modules*.

Strands in CTS define competencies that help students:

- build daily living skills
- investigate career options
- use technology (managing, processes, tools) effectively and efficiently
- prepare for entry into the workplace and/or related post-secondary programs.

In general, strands relate to selected industry sectors that offer positive occupational opportunities for students. Some occupational opportunities require further education after high school, and some allow direct entry into the workplace. The industry sectors encompass both goods-producing industries, such as agriculture, manufacturing and construction, and service-producing industries, such as business services, health services, and finance and insurance services.

Modules are the building blocks for each strand. They define what a student is expected to know and be able to do (exit-level *competencies*). Modules also specify prerequisites and facility and instructional parameters, where necessary.

The competencies a student must demonstrate to achieve success in a module are defined through the *module learner expectations*. Senior high school students who can demonstrate the module learner expectations (i.e., have the designated competencies) will qualify for one credit towards their high school diploma.

Module learner expectations are a culmination of the *specific learner expectations*, which provide a more detailed framework for instruction. They define the scope and depth of knowledge, skills and attitudes the student should acquire.

The following chart shows the 22 strands that comprise the CTS program and the number of modules available in each strand.

Strand	No. of Modules
1. Agriculture	31
2. Career Transitions	23
3. Communication Technology	32
4. Community Health	31
5. Construction Technologies	46
6. Cosmetology	58
7. Design Studies	31
8. Electro-Technologies	37
9. Energy and Mines	27
10. Enterprise and Innovation	8
11. Fabrication Studies	41
12. Fashion Studies	29
13. Financial Management	15
14. Foods	37
15. Forestry	21
16. Information Processing	43
17. Legal Studies	13
18. Logistics	12
19. Management and Marketing	21
20. Mechanics	53
21. Tourism Studies	24
22. Wildlife	17

Note: As of September 1996, all 22 strands are available for optional implementation in Alberta junior and high schools. Provincial implementation of all strands is scheduled for September 1997.

LEVELS OF ACHIEVEMENT

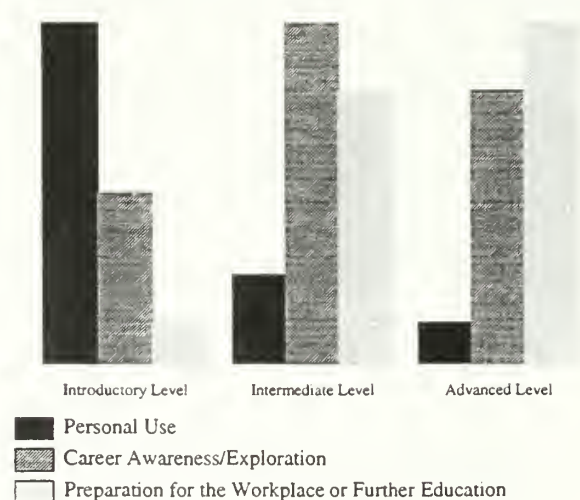
Modules are organized into three levels of achievement: introductory, intermediate and advanced. As students progress through the levels, they will be expected to meet higher standards and demonstrate increased degree of competence, both in the general learner expectations and the module learner expectations.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Intermediate level modules build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

The following illustrates the relative emphasis on the aspects of career planning at each of the levels.



TYPES OF COMPETENCE

Two types of competence are defined within the CTS program: basic and career-specific.

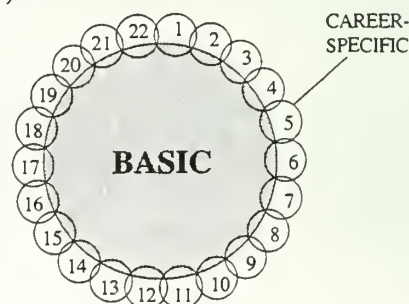
Basic Competencies are generic to any career area and are developed within each module. Basic competencies include:

- personal management; e.g., managing learning, being innovative, ethics, managing resources
- social; e.g., communication, teamwork, leadership and service, and demonstrating responsibility (safety and accountability).



Career-specific Competencies relate to a particular strand. These competencies build daily living skills at the introductory levels and support the smooth transition to the workplace and/or post-secondary programs at the intermediate and advanced levels.

The following model shows the relationship of these two types of competencies within the 22 strands of CTS (numbers refer to the chart on page A.5):



CURRICULUM AND ASSESSMENT STANDARDS

CURRICULUM STANDARDS

Curriculum standards in CTS define what students must know and be able to do. Curriculum standards are expressed through general learner expectations for CTS, and through module and specific learner expectations for each strand.

ASSESSMENT STANDARDS

Assessment standards define how the student's performance will be judged. In CTS, each assessment standard defines the conditions and criteria to be used for assessing the competencies defined in each module learner expectation. Students must fully meet each assessment standard, including all of the criteria and conditions defined for the module. Assessment standards are in draft form, as are tools and weightings, and will be validated 1994–97.

Teachers throughout the province will be able to ensure students receive a fair and reliable assessment. Students will use the assessment standards to guide their efforts, ensuring they participate more effectively and successfully in the learning and assessment process. Standards at advanced levels are as much as possible linked to workplace and post-secondary entry-level requirements.

The following pages describe the Agriculture strand in the Career and Technology Studies program.

AGRICULTURE

STRAND RATIONALE

Agriculture is a diverse endeavour involving both rural and urban communities. It affects the quality of life enjoyed by all Albertans. Agriculture encompasses not only the direct production of primary goods, but also the processing and service industries. It is the second most important area of economic activity in Alberta.★

Growth and development opportunities exist for agriculture products and technologies. The continued strength of Alberta's agriculture industry in domestic and international markets can be ensured through practices that add value to agriculture commodities, and by diversifying products and services to meet consumer needs.

Agriculture involves using our most basic resources: soils, water, plants, animals and people. Concern for the environment provides continuing incentive for new technologies and methods of managing interactions among these resources. Industry practices must ensure sustainable use of natural resources.

Agriculture, a strand in Career and Technology Studies, provides a comprehensive view of agriculture in Alberta. It encompasses plant and animal production, interior and exterior plantscape, animal husbandry, the agrifood

industry, market research and development, and environmental management. Students will develop first-hand knowledge of practices within Alberta's agriculture industries, and apply knowledge gained in producing agriculture products and providing related services.

Within the philosophy of Career and Technology Studies, students in Agriculture will develop the knowledge, skills, attitudes, motivation and commitment to work individually and collectively, as private citizens and members of the work force, toward the conservation and responsible use of water, land, air, forests and wildlife. In order to achieve these competencies, *the student will:*

- develop greater awareness of the economic, environmental and social significance of agriculture in society and the global marketplace, and of factors affecting industry decisions
- describe the characteristics of Alberta's agriculture and horticulture industries, and identify resulting products and services
- describe technologies and research programs that support sustainable agriculture systems and enhance the development of a range of products and services

★ Alberta Agriculture, Food and Rural Development. *Agriculture in Alberta*. Edmonton, Alberta: Alberta Agriculture, Food and Rural Development, 1993.

- translate sustainable development and conservation goals into viable plans for developing and marketing agriculture and horticulture products and services
- develop competencies and behaviours that have broad application to environmental career paths, and specific application to careers within Alberta's agriculture and horticulture industries.

Although students are at various stages of cognitive development, many will continue to use concrete operational thinking. Each module in Agriculture provides opportunities for students to link concrete and psychomotor learning experiences to more abstract thought processes and levels of thinking. Students will be encouraged to transfer the competencies they have developed in other core and complementary school courses as well as through hobbies, interests and past experiences. As students learn to relate theory and practice in participatory situations, confidence will further their ability to meet personal and professional challenges.

STRAND ORGANIZATION

DEVELOPMENT MODEL

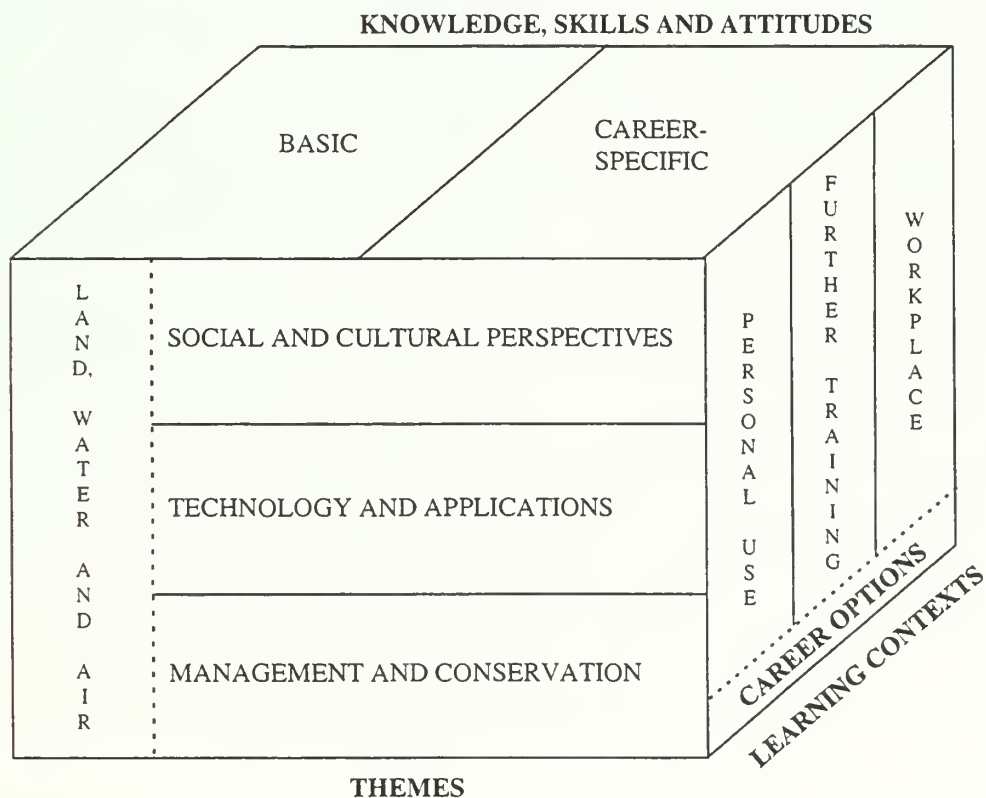
The development model depicts major emphases within the Agriculture strand. Three dimensions that provide a basis for selecting and organizing content are represented in the model.

- The **KNOWLEDGE, SKILLS AND ATTITUDES**, represented on the upper face of the model, provide structure for the course and focus attention on learning goals common to all CTS courses.
- The **LEARNING CONTEXTS**, represented on the right face of the model, foster the development of knowledge and behaviours that will enable students to meet the demands of daily living, further training and the workplace.

- The **THEMES** provide situational and concrete learning experiences that support the development of knowledge, skills and attitudes relevant to each of the learning contexts. Each theme focuses attention on a different aspect of sustainable agriculture development. Blended together, the themes enable students to understand how it is possible to fulfill social, cultural, aesthetic and economic goals through resource development, while embracing a conservation ethic so as to maintain essential ecological processes, genetic diversity and an adequate resource base for future generations.

LEVELS

Agriculture, like other Career and Technology Studies curricula, is organized into three levels of learning: introductory, intermediate and advanced.



Introductory modules enable students to develop an understanding of the significance of agriculture industries to Albertans. Students study sample areas of production, processing and marketing, and examine technologies that support sustainable agriculture practice. Intermediate and advanced level modules develop more specialized knowledge and skills within an area of production, marketing or service. Students examine the role of agriculture in a global economy, and consider influences of emerging technologies, international trade and environmental sustainability on industry practice and society in general.

(Interim Status, 1994)

SCOPE AND SEQUENCE

AGRICULTURE

INTRODUCTORY	INTERMEDIATE	ADVANCED	THEME
Agriculture: Getting the Big Picture ★ AGR101 From Producer to Consumer AGR102	Animal Husbandry and Health Care AGR202	Global Issues in Agriculture AGR301 Ethics in Agriculture and Food Production AGR302	Social and Cultural Perspectives
Production Basics AGR103 Consumer Products and Services AGR106 Marketing Fundamentals AGR109 Applications of Agriculture Technology AGR110	Field, Nursery and Greenhouse Crops I (Materials and Processes) AGR203 Livestock, Poultry and Animal Specialties I (Materials and Processes) AGR204 Agrifoods I (Materials and Processes) AGR205 Landscape and Turf Management I (Materials and Processes) AGR206 Pets and Equine I (Materials and Processes) AGR207 Floral Design I (Materials and Processes) AGR208 Marketing I (General Principles) AGR209 Controlled Growing Environments AGR210	Field, Nursery and Greenhouse Crops II (Management Techniques) AGR303 Livestock, Poultry and Animal Specialties II (Management Techniques) AGR304 Agrifoods II (Management Techniques) AGR305 Landscape and Turf Management II (Management Techniques) AGR306 Pets and Equine II (Management Techniques) AGR307 Floral Design II (Management Techniques) AGR308 Marketing II (Specialized Applications) AGR309 Applications of Biotechnology AGR310	Technology and Applications
Resource Management and Conservation AGR111	Soils Management I AGR212 Integrated Pest Management AGR213	Water Management AGR311 Soils Management II AGR312 Environmental Conservation and Consequences AGR313	Management and Conservation

—— Prerequisite Recommended sequence

★ This module provides a strong foundation for further learning in this strand.

MODULE DESCRIPTIONS

Module AGR101: Agriculture: Getting the Big Picture

Students demonstrate knowledge of the diversity and significance of agriculture, and identify career paths within the industry.

Module AGR102: From Producer to Consumer

Students research and describe the range of activities involved in selecting, producing, processing, transporting and marketing an agriculture or horticulture product.

Module AGR103: Production Basics

Students demonstrate basic steps involved in planting, growing and harvesting a plant commodity or raising, growing and finishing an animal commodity, and identify related career paths.

Module AGR106: Consumer Products and Services

Students demonstrate basic steps involved in processing (adding value to) an agriculture commodity and providing related services, and identify related career paths.

Module AGR109: Marketing Fundamentals

Students explain basic principles involved in marketing a plant or animal product or service, and identify related career paths.

Module AGR110: Applications of Agriculture Technology

Students describe applications of research and technology within an agriculture or horticulture industry.

Module AGR111: Resource Management and Conservation

Students describe practices used to manage water, soil and land use, and present the results of research on one or more related issues in agriculture.

Module AGR202: Animal Husbandry and Health Care

Students apply principles of animal science and health technology in providing care for a domestic animal.

Module AGR203: Field, Nursery and Greenhouse Crops I

Students apply knowledge of materials and processes in growing a field, nursery or greenhouse crop, focusing attention on plant anatomy and identification, growth requirements, physical structures and equipment, and related career opportunities.

Module AGR204: Livestock, Poultry and Animal Specialties I

Students apply knowledge of materials and processes in raising livestock, poultry or other animal commodities, focusing attention on anatomy and identification, health and nutrition, physical structures and equipment, and related career opportunities.

Module AGR205: Agrifoods I

Students demonstrate knowledge of materials and processes used in producing an agrifood product or providing a related service, focusing attention on industry inputs, processing technologies and practices, and related career opportunities.

Module AGR206: Landscape and Turf Management I

Students demonstrate knowledge of materials and processes used to provide landscape and turf management services, focusing attention on plant identification, equipment and supplies, basic landscape maintenance and related career opportunities.

Module AGR207: Pets and Equine I

Students demonstrate practical skills and approved practices in providing care for a domestic animal for the purpose of pleasure, performance or companionship. The module focuses attention on anatomy, taxonomy and genetics, handling and care techniques, health and nutrition, and related career opportunities.

Module AGR208: Floral Design I

Students demonstrate knowledge of materials and processes used to construct floral designs, focusing on plant and flower identification, simple floral techniques and arrangements, and related career opportunities.

Module AGR209: Marketing I

Students apply knowledge of general marketing principles within the context of an agriculture or horticulture industry, focusing attention on materials and services offered to the consumer through open marketing structures, marketing techniques and related career opportunities.

Module AGR210: Controlled Growing Environments

Students identify essential components of a controlled growing environment, and demonstrate techniques used to manage the growing environment within a protected structure.

Module AGR212: Soils Management I

Students examine soil formation and classification, conduct tests to determine the physical and chemical properties of soils, and explain the impact of soil properties on productivity.

Module AGR213: Integrated Pest Management

Students apply knowledge of biological, cultural and chemical pest-control measures within the context of an agriculture, horticulture or forest industry.

Module AGR301: Global Issues in Agriculture

Students analyze a range of issues in agriculture, and develop strategies for dealing with agriculture issues within a global context.

Module AGR302: Ethics in Agriculture and Food Production

Students identify a range of ethical concerns relevant to agriculture and food production, analyze different points of view regarding agriculture technologies, and clarify a personal position on an ethical issue in agriculture.

Module AGR303: Field, Nursery and Greenhouse Crops II

Students demonstrate techniques used to produce a field, nursery or greenhouse crop, focusing attention on enterprise viability, taxonomy and selection, production tasks and industry trends.

Module AGR304: Livestock, Poultry and Animal Specialties II

Students demonstrate techniques used to produce a livestock, poultry or other animal commodity, focusing attention on enterprise viability, genetics and reproduction, production tasks and industry trends.

Module AGR305: Agrifoods II

Students demonstrate knowledge of techniques used to manage the development of an agrifood product or related service, focusing attention on government regulation and control, economic principles, product quality and safety, environmental impact and industry trends.

Module AGR306: Landscape and Turf Management II

Students demonstrate techniques used to provide landscape and turf management services, focusing attention on plant taxonomy, equipment maintenance, effective landscape practices, cost estimates and pricing.

Module AGR307: Pets and Equine II

Students demonstrate techniques used to operate an animal boarding or training facility, focusing attention on the care and use of physical facilities, husbandry and training skills, health and reproductive technologies, and record keeping systems.

Module AGR308: Floral Design II

Students demonstrate knowledge of the practices involved in providing floral design and interior plantscape services, focusing attention on design elements, interior plant care, floral services and marketing practices.

Module AGR309: Marketing II

Students explain specialized applications of marketing within an agriculture or horticulture industry, focusing attention on regulatory structures and policies that influence supply of a commodity, product or service, and compare the advantages and disadvantages of open and closed marketing systems to the industry.

Module AGR310: Applications of Biotechnology

Students present the results of research on applications of biotechnology in agriculture and food production.

Module AGR311: Water Management

Students explain principles of water management, and establish appropriate water management practices for an agriculture or horticulture enterprise.

Module AGR312: Soils Management II

Students demonstrate knowledge of appropriate soil testing and amending techniques, and interpret soil survey maps and reports.

Module AGR313: Environmental Conservation and Consequences

Students examine the impact of a range of plant and animal production practices on the environment, and propose strategies for ensuring the sustainable use of natural resources.

SECTION C: PLANNING FOR INSTRUCTION

CTS provides increased opportunity for junior and senior high schools to design courses based on the needs and interests of their students and the circumstances within the school and community. Some strands may be appropriately introduced at the junior high school level. Other strands are more appropriately introduced at the senior high school level or to Grade 9 students. Refer to this section for recommendations regarding the Agriculture strand, or the *CTS Manual for Administrators, Counsellors and Teachers* for a summary of the recommended grade levels for each strand.

PLANNING FOR CTS

Defining Courses

Schools determine which strands and modules will be offered in a particular school, and will combine modules into courses.

Each module was designed for approximately 25 hours of instruction. However, this time frame is only a guideline to facilitate planning. The CTS curricula are competency based, and the student may take more or less time to gain the designated competencies within each module.

A course will usually consist of modules primarily from the same strand but, where appropriate, may include modules from two or more strands. Refer to the *CTS Manual for Administrators, Counsellors and Teachers* for more information on course names and course codes.

Module selection and sequencing must consider the module parameters, which define:

- prerequisite and corequisites (entry-level competencies)
- instructional qualifications, if specialized
- equipment and facility requirements, if specialized.

The module parameters are defined for each module in Sections D, E and F of this Guide

Degree of Flexibility

The CTS program, while designed using the modular structure to facilitate flexible time tabling and instructional delivery, does not mandate the degree of flexibility a school or teacher will offer. The teacher and school will determine the degree of flexibility available to the student. Within the instructional plan established by the school, the student may:

- be given the opportunity to progress at a rate that is personally challenging
- have increased opportunity to select modules that develop competencies he or she finds most relevant.

Integrating Basic Competencies

Basic competencies are also developed throughout the CTS program and within each CTS module. Selected basic competencies will be emphasized within a module, depending on the nature of the career-specific competencies defined for the module.

Refer to Section G (Assessment Tools) of this Guide for the description of student behaviours expected at each of the four developmental stages defined for the basic competencies.

Assessment of basic competencies could include input and reflection involving the student, teacher(s), peers and others. Description of the observed behaviour could be provided through a competency profile for the module. Positive, ongoing interaction between the student and teacher will support motivation for student growth and improvement.

The basic competencies related to teamwork, service, safety and accountability should be emphasized in Agriculture modules at the

intermediate and advanced levels where industry-based activities and projects would be appropriate.

No mark would be assigned to the student's performance in the designated basic competencies, although observations of performance should be included within the assessment of each module.

Assessing Student Achievement

Assessing the student's competency is a process of gathering information by way of observations of process, product and student interaction.

Where appropriate, assessment tools have been defined to assist the teacher and student in the assessment. Refer to Section G (Assessment Tools) of this Guide to Standards and Implementation for copies of the various tools (worksheets, checklists, sample questions, etc.).

A suggested emphasis for each assessment standard has also been established. The suggested emphasis provides a guideline to help teachers determine time allocation and/or a percentage grade for students.

Recognizing Student Achievement

At the high school level, successful demonstration of the exit-level competencies in a module qualifies the student for one credit. Refer to Section A of this Guide for more detailed information about how curriculum and assessment standards are defined in CTS. Refer to the *CTS Manual for Administrators, Counsellors and Teachers* for more information on how student achievement can be recognized and reported at the school and provincial levels.

Resources

A comprehensive resource base, including print, software and audio-visual, has been identified to support the Agriculture strand. It is intended that these resources will form the basis of a resource centre, encouraging teachers and students to access a wide selection of resources and other information sources throughout the learning process. Unless otherwise noted, these resources

are considered to be suitable for both junior and senior high school students.

Authorized resources may be obtained from the Learning Resources Distributing Centre or directly from the publisher or distributor. Refer to Section I (Learning Resource Guide) of this Guide for the complete resource list including curriculum correlations and resource annotations. Additional sources refer to non-commercial or government agencies that offer resources that may be of assistance in this strand.

In addition to the resources, sample Student Learning Guides are available. These samples, designed for individual student or small group use, provide an instructional plan for selected modules and include the following components:

- Why take this module?
- What are the entry-level competencies?
- What are the exit-level competencies?
- What resources may be accessed?
- What assignments/activities must be completed?
- What are the time lines?
- How will the final mark be calculated?

Sample Student Learning Guides have been developed for the following modules in Agriculture:

- Production Basics
- Consumer Products and Services
- Field, Nursery and Greenhouse Crops I
- Field, Nursery and Greenhouse Crops II
- Agrifoods I
- Landscape and Turf Management I
- Landscape and Turf Management II
- Floral Design I
- Floral Design II
- Applications of Biotechnology.

Copies of these samples can be obtained, by request, from the CTS Unit in print and/or disk format (Microsoft Word).

PLANNING FOR AGRICULTURE

Sample A: 50 hours of instruction

The following suggestions are provided to assist teachers and school and school system administrators as they plan to deliver modules from the Agriculture strand.

Selecting Modules

The scope and sequence chart in Section B provides an overview of the Agriculture modules, indicating prerequisites and theme areas. Brief descriptions of the modules follow the scope and sequence chart in Section B.

Course planning should take into consideration module sequences that link with both physical and human resources present in the school and community. Although not required, it is recommended that AGR101: Agriculture: Getting the Big Picture be a prerequisite/corequisite to all modules in the agriculture strand.

Agriculture in Junior High

The introductory level modules may be offered at the junior high level. As each school and community will vary in terms of available resources, it is important to consider potential education partners prior to selecting module sequences.

The number of modules will vary according to time available throughout grades 7, 8 and 9. Two sample courses based on introductory level modules are outlined below.

COURSE EMPHASIS
Introduction to Agriculture
MODULES
Agriculture: Getting the Big Picture (AGR101) From Producer to Consumer (AGR102)
RATIONALE/KEY LEARNINGS
Students develop an understanding of the diversity and significance of agriculture, and examine the range of activities involved in producing, processing and marketing an agricultural/horticultural product. The course complements the junior high science and social studies programs, and can be linked with other CTS strands including Foods and Mechanics.

Sample B: 75 hours of instruction

COURSE EMPHASIS
Agriculture/Horticultural Production
MODULES
Production Basics (AGR103) Marketing Fundamentals (AGR109) Resource Conservation and Management (AGR111)
RATIONALE/KEY LEARNINGS
Students develop practical skills involved in growing a plant or raising an animal commodity, examine basic principles related to marketing the commodity, and research practices used to manage water, soil and land use in production activities. The course complements the junior high science and social studies programs, and can be linked with other CTS strands including Management and Marketing, Mechanics and Wildlife.

Where appropriate, junior high school students may also take intermediate level modules, particularly in the Technology and Applications theme.

Modules may be combined into courses and offered within a school year or over a span of a few years.

Agriculture in Senior High

Three sample courses, based on intermediate and advanced level modules and designed to be delivered to senior high school students, are outlined below.

Sample C: 75 hours of instruction

COURSE EMPHASIS
Beginning Floral Design and Plantscape (no previous experience)
MODULES
Consumer Products and Services (AGR106) Floral Design I (AGR208) Marketing II (AGR209)
RATIONALE/KEY LEARNINGS
Students demonstrate practical skills used to construct floral designs and interior plantscapes, and examine techniques for marketing these services to the consumer. This course can be linked with other CTS strands including Career Transitions, Design Studies, Enterprise and Innovation, Financial Management, and Management and Marketing.

Sample D: 100 hours of instruction

COURSE EMPHASIS
Livestock Production (assuming junior high background)
MODULES
Animal Husbandry and Health Care (AGR202) Livestock, Poultry and Animal Specialties I (AGR204) Controlled Growing Environments (AGR210) Applications of Biotechnology (AGR310)
RATIONALE/KEY LEARNINGS
Students apply principles of animal science and health technology in raising livestock, demonstrate techniques used to maintain confinement structures, and research application of biotechnology in the livestock industry. The course can be linked with other CTS strands including Career Transitions, Construction Technologies, Enterprise and Innovation, Financial Management, Forestry, Management and Marketing, and Mechanics.

Sample E: 125 hours of instruction

COURSE EMPHASIS
Nursery Crop Production (assuming junior high background)
MODULES
Field Nursery and Greenhouse Crops I (AGR203) Marketing I (AGR209) Soils Management (AGR212) Integrated Pest Management (AGR213) Water Management (AGR311)
RATIONALE/KEY LEARNINGS
Students develop practical skills required for the sustainable production of nursery crops, and examine techniques used to market nursery products. This course can be linked with other CTS strands including Career Transitions, Enterprise and Innovation, Financial Management, Forestry, Management and Marketing, and Mechanics.

Modules could also be grouped into comprehensive courses that develop competencies relevant to career paths within a specific industry.

Organizing for Learning

A “learn by doing” approach is recommended for the Agriculture strand. Essentially, the teacher’s role will become that of guide and partner in the learning process. The “learn by doing” approach requires the teacher to be facilitator and coach, rather than subject-based expert, as students actively participate in learning by doing and discovering.

Small group instruction is a good way to foster learning by doing and discovering. Small groups enable students to be active participants in learning, and develop independent and responsible learning habits. As students work in small group situations, they will share information, solve

problems, develop consensus, and help each other learn content and processes.

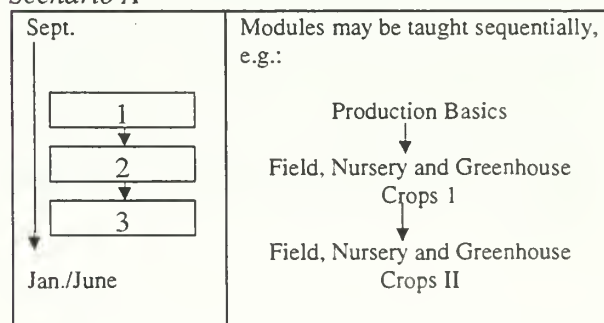
The community has a key role in education and can be an effective partner in the learning process. The use of community members and resources should be integrated into course planning. Business, industry, post-secondary and government agencies offer a wide range of services and resources, as do local clubs, service groups and institutions. When planning for the use of community resources, teachers should ensure that related presentations and/or activities:

- are consistent with student knowledge and skill levels
- demonstrate sound pedagogy
- are exemplary of approved health and safety standards
- provide a balanced approach to curriculum topics and related issues.

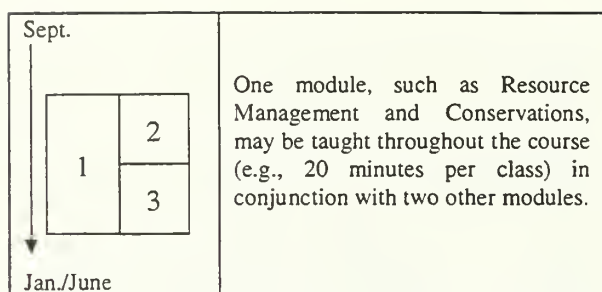
Prior to selecting modules, teachers should check the module parameters outlined in each module (see Sections D, E and F of this guide). These module parameters, in addition to identifying prerequisite or corequisite modules, identify community partners and resources that may assist and support the learning process.

Modules can be delivered sequentially, concurrently or combined. For example, although the modules from the Technology and Applications theme are sequential, they can be combined with modules from the Social and Cultural Perspectives theme or the Management and Conservation theme.

Scenario A

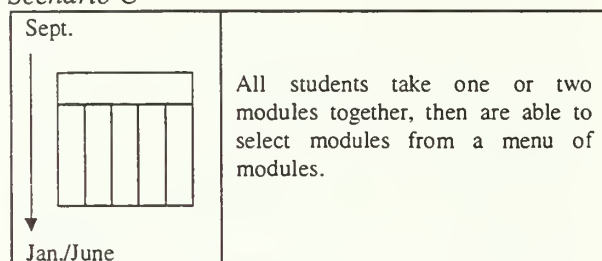


Scenario B

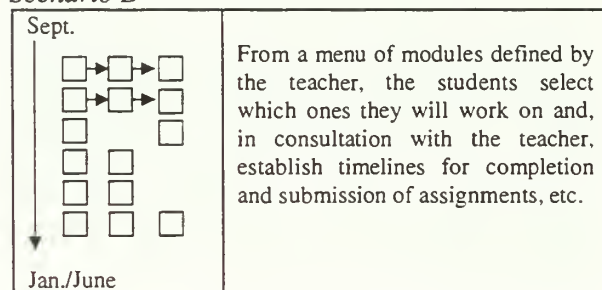


Teachers can also allow students to progress at a rate that is personally challenging; e.g.:

Scenario C



Scenario D



As in all CTS strands, students will identify, explore and prepare for future career opportunities. It is recommended that course planning include the integration of relevant career investigations throughout each module, rather than as a singular or isolated study. Career profiles, interviews and job-shadowing will acquaint students with the many technical and professional careers associated with the agriculture industry.

Addressing Safety in Off-campus Excursions

Field-based investigations are recommended and should be an important part of teaching and learning throughout the Agriculture strand. Safety must be a prime consideration in planning off-campus learning experiences. Both teachers and students should engage in activities commensurate with their level of training and ability. Adequate instructional support, guidance and supervision must be provided at all times. Local jurisdiction and school policies must be understood by principals, teachers, parents, supervisors and students.

Preparation and Risk Anticipation

The preparation stage is an important part of any off-campus learning experience. At this stage of planning, potential risks can be anticipated and either avoided or moderated. The preparation stage should focus attention on:

- trip administration, including the use of parental permission forms, health information forms, school/system authorization forms and accident report forms as required
- a review of laws and regulations relevant to the learning site and activities that will be undertaken
- assessment of the learning site in terms of potential hazards and risks that may be present
- group size and the level of supervision that will be required (i.e., supervisor/student ratio)

Plans for learning must address social, economic and environmental perspectives related to sustainable agriculture systems and provide opportunities for students to become involved in learning experiences that reflect a broad understanding of related issues and concerns. Presentations of course content that reflect a singular or narrow view of social, economic or environmental concerns are not consistent with learner expectations and must be avoided. For clarification of policy in this regard, refer to Alberta Education's Policy on Controversial Issues in the *Alberta Education Policy Manual* (1989).

- a briefing of parents, school administrators, government/industry authorities or others who should be informed regarding itineraries, participants and emergency response plans
- pre-trip logistics, including transportation, equipment, facility and departure date/time considerations
- student preparation, including the development of background knowledge/experience and training in specific skill areas.

On-site Risk Management

Safety and risk management involves exercising situation-specific judgement throughout the course of off-campus learning. Judgement is the product of experience, and may include recognizing factors such as dangers imposed by equipment or animals, deteriorating weather, a decline in physical strength, or a more challenging task. Many of the hazard recognition skills can be taught in the classroom in the preparation stage.

A significant aspect of on-site risk management is group management. Teachers can exercise appropriate group management strategies by focusing attention on:

- pacing, including speed of travel, rest stops, distance travelled and fitness level of students
- maintaining a safe distance for observations
- group control, including position of leader, signal systems and buddy systems
- the establishment of group rules and norms
- clearly defined task allocations for each student
- objective hazard recognition in the field, including machinery and equipment, weather, terrain, flora and fauna
- subjective hazard recognition in the field, including level of group energy and level of cooperation.

Emergency Response

If students have been well prepared for field-based learning experiences and appropriate group management strategies exercised, the teacher will

have maximized opportunities for effective response to an emergency situation. An effective emergency response action plan should include consideration of:

- a suitable approach to the accident site
- first-aid supplies and techniques
- a strategy for signalling assistance
- an evacuation plan
- group management throughout the emergency situation.

Identifying Linkages

Section H of this Guide describes linkages within CTS and with core and complementary programs.

Note that project and practicum modules from the Career Transitions strand may be combined with modules from Agriculture to provide increased opportunity for students to develop expertise, refine their competencies and/or obtain credentials.

Project and practicum modules are **not** designed to be offered as distinct courses and should **not** be used to extend Work Experience 15, 25 and 35 courses.

Improving Smooth Transitions to the Workplace and/or Post-secondary Programs

Refer to Section H of this Guide for potential transitions students may make into:

- the workplace
- related post-secondary programs or other avenues for further learning.

MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION D: INTRODUCTORY LEVEL

The following pages define the curriculum and assessment standards for the introductory level of Agriculture.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Module learner expectations define the competencies a student must demonstrate to achieve success in a module. Assessment standards define the conditions and criteria to be used for assessing the competencies defined in the module learner expectations. These assessment standards and the accompanying assessment tools are in draft form and will be validated from 1994 to 1996.

Specific learner expectations provide a detailed framework for instruction to help students build the competencies defined in the module learner expectations. Additional information and suggestions for instruction are provided in the Notes column; teachers may wish to use this space to record their ideas for instruction or student projects.

Module AGR101:	Agriculture: Getting the Big Picture	D.3
Module AGR102:	From Producer to Consumer	D.9
Module AGR103:	Production Basics.....	D.13
Module AGR106:	Consumer Products and Services	D.17
Module AGR109:	Marketing Fundamentals.....	D.21
Module AGR110:	Applications of Agriculture Technology	D.25
Module AGR111:	Resource Management and Conservation.....	D.31

MODULE AGR101: AGRICULTURE: GETTING THE BIG PICTURE

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Parameters: Access to rural and/or urban agriculture industry

Students demonstrate knowledge of the diversity and significance of agriculture, and identify career paths within the industry.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the diversity of agricultural activity in Alberta, Canada and the global community	<i>Assessment of student achievement will be based on:</i> - a definition of comprehensive agriculture that encompasses three or more examples of each of the following: - production operations - processing systems and value-added products - marketing and distribution systems - business and labour providing inputs and services - community services and government agencies serving agriculture <i>Assessment Tool</i> <i>Knowledge/Application Assessment: A Definition for Agriculture, AGR101-1</i> <i>Space Age Agriculture: Land and Life, LRDC</i> <i>Standard</i> <i>Address 6 of the criteria for a definition of agriculture (as identified in AGR101-1) to a standard of 1 on the rating scale</i>	30

MODULE AGR101: AGRICULTURE: GETTING THE BIG PICTURE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> explain the economic, environmental and social and significance of agriculture	<i>Assessment of student achievement will be based on:</i> - maintaining a log/journal of reflections and thoughts regarding: - the impact of agriculture activity on social and cultural values, environmental factors and economic viability within the local community - future trends in agriculture, based on consumer preferences, changing world markets, developments in technology and environmental stewardship <i>Assessment Tool</i> <i>Reflection Guide: The Significance of Agriculture, AGRREF</i> <i>Standard</i> <i>Complete 5 journal entries; address criteria for reflection to a standard of 1 on the rating scale</i> - a summary and critique of two or more current news articles regarding the impact of personal choices (food, clothing and lifestyle) on the agriculture industry <i>Assessment Tool</i> <i>Guide to Critiquing Media Information, AGRMED</i> <i>Standard</i> <i>Summarize and critique two news articles to a standard of 1 on the rating scale</i>	40

MODULE AGR101: AGRICULTURE: GETTING THE BIG PICTURE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - research career clusters within the agriculture industry - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given current resources on career opportunities in agriculture/horticulture, completing a research project on one or more related career paths <i>Assessment Tool</i> <i>Career Search: Introductory Level, AGRCAR-1</i> <i>Standard</i> <i>Conduct research to a standard of 1 on the rating scale</i> - observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	30 Integrated throughout

Concept	Specific Learner Expectations	Notes
Diversity	<i>The student should:</i> - explain the function of subsistence agriculture and commercial agriculture - compare agricultural activities in rural and urban areas; e.g., - scale of industry - labour requirements - type of commodity produced - market opportunities - degree of mechanization - describe production and consumption patterns of agricultural products at local, national and international levels	Research how grain was first planted for domestic use. Visit a Farmers' Market. Consider diversity of agriculture that is evident through products being sold. Use world maps to show food production/ consumption patterns.

MODULE AGR101: AGRICULTURE: GETTING THE BIG PICTURE (continued)

Concept	Specific Learner Expectations	Notes
Diversity (continued)	<i>The student should:</i> - identify evolving and emerging forms of agriculture that have potential to provide aesthetic, emotional, economic and health benefits; e.g., - food and textiles - industrial applications - greenhouse production - interior plantscape and landscape - animal husbandry and health care - identify business/labour that provides inputs and services to agriculture - describe the function of community services and government agencies serving agriculture.	Survey local area to determine plants/ animals grown for food. Prepare a display featuring these plants/animals. Invite government and/or industry resource persons to explain their role in agriculture.
Economic, Environmental and Social Significance	- relate consumer needs and wants to a rationale for the exchange of agricultural goods and services at local, national and global levels - describe the exchange of agricultural goods and services between Canada and other nations, and its impact on the national economy - assess the impact of agriculture on quality of life factors; e.g., - rural and urban development - sustainable food supply - use of natural resources - lifestyle - define sustainable agriculture production - explain the importance of sustainable production systems in meeting societal needs for food and other amenities, conserving natural resources and enhancing the quality of the environment	Investigate relationships between production and consumption patterns. Scrapbook of historical trends in production of a commodity/product. Compare the economic significance of two agriculture industries in Alberta. Obtain relevant and current resources from: - Alberta Agriculture, Food and Rural Development - Agriculture Canada - Alberta Economic Development Productivity Council. Research the impact of agriculture on ecosystems.

MODULE AGR101: AGRICULTURE: GETTING THE BIG PICTURE (continued)

Concept	Specific Learner Expectations	Notes
Economic, Environmental and Social Significance (continued)	<i>The student should:</i> • assess the impact of choices and decisions made by citizens on the agriculture industry; e.g., – selection of foods and textiles – use of land and/or chemicals – concern for animal welfare – support given to development and research.	Keep journal of media articles regarding consumer influences on agriculture industries.
Career Clusters	• outline career clusters and the range of occupational opportunities within the agriculture/horticulture industry; e.g., – production science and management – processing (food/fibre/industrial/horticultural) – marketing, distribution and retail services – support services – resource management • compare career opportunities in rural and urban areas • gather employment statistics for one or more career clusters; e.g., – types of careers – number of workers – employment trends • predict career opportunities and trends from employment statistics • gather information regarding agriculture/horticulture industries in the future, and resulting career opportunities.	Interview community members regarding involvement in agriculture. Comprehensive lists of agriculture-related careers. Contact “Careers Hotline” (telephone: 1-800-661-3753). Individual/group research and presentation. See National Occupational Classification system (NOC).

MODULE AGR102: FROM PRODUCER TO CONSUMER

Level: Introductory

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Parameters: Access to an agriculture or horticulture industry

Students research and describe the range of activities involved in selecting, producing, processing, transporting and marketing an agriculture or horticulture product.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify factors that influence enterprise selection within an agriculture or horticulture industry	<i>Assessment of student achievement will be based on:</i> given a local agriculture or horticulture enterprise, identifying economic and environmental factors determining its viability <i>Assessment Tool</i> <i>Knowledge/Application Assessment: Enterprise Selection, AGR102-1</i> <i>Standard</i> <i>Respond to a standard of 1 on the rating scale</i>	20
describe the sequence of steps required to produce an agriculture or horticulture product	- given a local agriculture or horticulture commodity, preparing: - a flow chart that illustrates the stages/steps involved in producing and processing the commodity or resulting product - a concept map/web that illustrates careers/occupations relevant to each stage of production and processing <i>Assessment Tool</i> <i>Assessment Criteria: Flow Charts, AGRFLO</i> <i>Sample Concept Map/Web: Careers in Agriculture, AGR102-2</i> <i>Standard</i> <i>Complete flow chart of production stages to a standard of 1 on the rating scale; identify 3 or more careers relevant to each stage of production</i>	40

MODULE AGR102: FROM PRODUCER TO CONSUMER (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research potential markets and marketing systems for an agriculture or horticulture product/service	<i>Assessment of student achievement will be based on:</i> given an agriculture or horticulture product/service, completing a research project on basic steps involved in marketing the product/service <i>Assessment Tool</i> <i>Research Process: Marketing Systems AGR102-3</i> <i>Standard</i> <i>Complete all components of research to a standard of 1 on the rating scale</i>	20
explain how agriculture/horticulture markets are expanded and existing products are altered to meet the needs of new markets.	developing a plan for expanding market opportunities, altering an existing agriculture or horticulture product, or developing a new product <i>Assessment Tool</i> <i>Assessment Criteria: Product/Market Development, AGR102-4</i> <i>Standard</i> <i>Develop a plan to a standard of 1 on the rating scale</i>	20
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR102: FROM PRODUCER TO CONSUMER (continued)

Concept	Specific Learner Expectations	Notes
Enterprise Selection	<i>The student should:</i> - identify economic factors involved in enterprise selection; e.g., - access to, size and location of markets - labour requirements - land requirements - transportation requirements - fixed and variable costs - identify environmental factors that influence enterprise selection within an agriculture or horticulture industry; e.g., - climate - soil and water conditions - assess the impact of policy and regulations regarding the use of land, water and air on commodity production; e.g., - land zoning/ownership/tenure - water rights - effluent disposal/use of chemicals.	Develop a simple business plan for an agriculture/ horticulture venture (see Enterprise and Innovation). Enterprise selection may also be influenced by: - tradition - available technology - energy supplies. Identify materials and services required to support a venture. Case studies.
Production Networks	- outline the stages and steps involved in producing a plant or animal commodity - classify and sequence the steps required to move the commodity from producer to consumer; e.g., - transportation - processing - grading - packaging - storing - merchandising - identify materials and services that are used at each stage of production, processing and marketing; e.g., - human resources - natural resources - technology - energy - transportation and storage - inspection and regulation - identify careers/occupations relevant to each stage of production, processing and marketing.	Prepare flow charts/ diagrams. Identify inputs and output. Examine steps in: - production - processing and packaging - transportation and storage.

MODULE AGR102: FROM PRODUCER TO CONSUMER (continued)

Concept	Specific Learner Expectations	Notes
Marketing Systems	<i>The student should:</i> - describe local, national and international markets for the agriculture or horticulture product - identify relevant marketing alternatives, including free market systems, supply managed systems, marketing boards and/or cooperatives - identify and describe basic steps in marketing the product; e.g., - gathering market information - packaging and labeling - pricing - distribution - advertising and sales.	Prepare a hypothetical marketing strategy. Examine advertisements and explain their appeal. Compare size, form, labeling and visual layout of different packages.
Product Development	- identify factors that influence consumer trends and the development of new markets for an agriculture or horticulture product; e.g., - economic - environmental - social and demographic - identify market opportunities that arise from specialization, international trade and participation in a global economy - explain the steps followed in altering an existing agriculture or horticulture product, or in developing a new product.	Role of consumer references in determining products. A possible <u>extension activity</u> might be to research the procedures involved in patenting a process or product.

MODULE AGR103: PRODUCTION BASICS

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to plant or animal production facilities is required

Note: Opportunities may exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs).

Students demonstrate basic steps involved in planting, growing and harvesting a plant commodity or raising, growing and finishing an animal commodity, and identify related career paths.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify the basic steps and procedures involved in producing a plant or animal commodity	<i>Assessment of student achievement will be based on:</i> preparing a flow chart that illustrates basic stages and steps involved in planting, growing and harvesting a plant commodity, or raising, growing and finishing an animal commodity <i>Assessment Tool</i> <i>Assessment Criteria: Flow Charts, AGRFLO</i> <i>Sample Flow Chart: Production Basics, AGR103-1</i> <i>Standard</i> <i>Complete flow chart of plant/animal production tasks to a standard of 1 on the rating scale</i>	25

MODULE AGR103: PRODUCTION BASICS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i>	<i>Assessment of student achievement will be based on:</i> - performing practical tasks relevant to plant or animal production. Practical tasks to involve monitoring and maintaining <u>one</u> or more of the following: - physical growth requirements - plant/animal health - buildings/structures and equipment <i>Assessment Tool</i> <i>Lab Assessment, AGRLAB-PLT <u>or</u> AGRLAB-ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 1 in applicable areas of task assessment</i>	25
	- maintaining an anecdotal record of production tasks performed <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG-PLT <u>or</u> AGRLOG-ANM</i> <i>Standard</i> <i>Complete all sections of the log/record for each task performed over a negotiated/contracted period of time</i> - constructing a drawing/model of a technological system designed to address one or more needs relevant to plant or animal production <i>Assessment Tool</i> <i>Project Assessment: Technology Design, AGRTEC</i> <i>Assessment Criteria: Diagrams and Technical Drawings, AGRDRA</i> <i>Standard</i> <i>Complete the drawing/model to a standard of 1 on the rating scale</i>	25

MODULE AGR103: PRODUCTION BASICS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research career clusters relevant to plant or animal production	<i>Assessment of student achievement will be based on:</i> given access to current information on career opportunities in agriculture production and related service industries, completing a research project on one or more career clusters in plant or animal production <i>Assessment Tool</i> <i>Career Search: Introductory Level, AGRCAR-1</i> <i>Sample Concept Map/Web: Careers in Agriculture Production, AGR103-2</i> <i>Standard</i> <i>Complete research to a standard of 1 on the rating scale</i>	25
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Production Practices	<i>The student should:</i> - identify physical requirements for the production of a commodity; e.g., - water requirements - light intensity and duration - type of soil - climate and temperature - air - space variables - nutrient requirements.	Requirements for germination. Compare nutritional value of various feed sources. Container crops (e.g., tomatoes, beans, cucumbers). Monitor soil moisture and temperature. Compare soil samples. Functions/components of fertilizers.

MODULE AGR103: PRODUCTION BASICS (continued)

Concept	Specific Learner Expectations	Notes
Production Practices (continued)	<i>The student should:</i> - describe a strategy for protecting the health of a chosen commodity; e.g., - identification of diseases, deficiencies and ailments - treatment, control and prevention - ethical concerns - relate concepts of breeding and selection to production practices; e.g., - systems of breeding - selection criteria - genetic engineering - describe buildings/structures and equipment appropriate to production; e.g., - design features - operation and maintenance - safety - economics/cost	Identify common pests/diseases. Chemical/non-chemical methods of pest and disease control. Identify common breeds/varieties. Design/build a hydroponic garden. Factors in animal health.
Career Clusters	- research career clusters and occupations relevant to agriculture or horticulture production; e.g., - science/production management - support services - resource management - gather current employment statistics within one or more career clusters; e.g., - types of careers - number of workers - employment trends - predict career opportunities and trends from employment statistics - gather information regarding agriculture or horticulture production industries in the future, and resulting career opportunities.	Individual/group research and presentation. Information interviews and job shadowing. See National Occupational Profiles (NOC). Contact the "Career Hotline" (telephone: 1-800-661-3753).

MODULE AGR106: CONSUMER PRODUCTS AND SERVICES

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to an agriculture processing industry and related service industries is required

Students demonstrate basic steps involved in processing (adding value to) an agriculture commodity and providing related services, and identify career paths in agriculture processing.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> explain the basic steps and procedures involved in processing an agriculture commodity and providing related services	<i>Assessment of student achievement will be based on:</i> preparing a flow chart that illustrates basic stages and steps involved in processing an agriculture or horticulture product and providing a related service <i>Assessment Tool</i> <i>Assessment Criteria: Flow Charts, AGRFLO</i> <i>Standard</i> <i>Complete flow chart of stages/steps in processing to a standard of 1 on the rating scale.</i>	25
	- performing practical tasks relevant to processing an agriculture or horticulture product. Practical tasks to demonstrate knowledge of: - inputs to the product or service - processes and techniques - product safety, quality and environmental control - safe use of buildings/structures and equipment <i>Assessment Tool</i> <i>Lab Assessment: Agriculture Processing, AGRLAB-PRO</i> <i>Standard</i> <i>Achieve a minimum performance rating of 1 in applicable areas of task assessment</i>	25

MODULE AGR106: CONSUMER PRODUCTS AND SERVICES (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i>	<i>Assessment of student achievement will be based on:</i> constructing a drawing/model of a technological system designed to address one or more needs relevant to processing a plant or animal commodity <i>Assessment Tool</i> <i>Project Assessment: Technology Design AGRTEC</i> <i>Assessment Criteria: Diagrams and Technical Drawings, AGRDRA</i> <i>Standard</i> <i>Complete the drawing/model to a standard of 1 on the rating scale</i>	25
research career clusters in processing agriculture or horticulture products and providing related services	given access to current information on career opportunities in agriculture processing and related service industries, completing a research project on one or more career clusters in the agriculture processing industry <i>Assessment Tool</i> <i>Career Search: Introductory Level, AGRCAR-1</i> <i>Standard</i> <i>Complete research to a standard of 1 on the rating scale</i>	25
demonstrate basic competencies.	observation of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR106: CONSUMER PRODUCTS AND SERVICES (continued)

Concept	Specific Learner Expectations	Notes
Agriculture Processing	<i>The student should:</i> • identify steps that are followed in developing a consumer product or providing a related service; e.g., – inputs to the product or service – processes and techniques – safety, quality and environmental control • explain relevant legislation and practices regarding identification, grading, packaging and labelling of the product or service • describe strategies for ensuring the quality of the product or service; e.g., – quality indicators – control measures • identify appropriate methods for transporting, storing, advertising and/or promoting the product or service • describe buildings/structures and equipment appropriate to providing the product or service; e.g., – design features – operation and maintenance – safety – economics/cost	If studies in sequence with AGR103: Production Basics, this module provides opportunities for students to “add value” to an agriculture commodity already produced; e.g.: • making bread from grain • making cheese from dairy products. Prepare flow charts/ diagrams of techniques and processes. Engage students in the application of standards used to grade a product. Consider related health issues. Identify determinants of regional commodity processing.
Career Clusters	• research career clusters relevant to developing a consumer product or providing a related service; e.g., – food/fibre/industrial/horticultural – support services – resource management • gather employment statistics from one or more career clusters; e.g., – types of careers – number of workers – employment trends • predict career opportunities and trends from employment statistics • gather information regarding agriculture or horticulture products and services in the future, and resulting career opportunities.	Individual/group research and presentation. Interviews. Contact the “Career Hotline” (telephone: 1-800-661-3753). See National Occupational Profiles (NOC).

MODULE AGR109: MARKETING FUNDAMENTALS

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to agriculture marketing facilities is required

Students explain basic principles involved in marketing a plant or animal commodity, product or service, and identify related career paths.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> explain basic principles involved in marketing an agriculture/horticulture commodity, product or service	<i>Assessment of student achievement will be based on:</i> - identifying basic components of an existing strategy used to market an agriculture/horticulture commodity, product or service. Marketing components to include: - commodity supply - current and potential markets - marketing principles and strategies - pricing - packaging and labelling - advertising and promotion - sales and distribution. <i>Assessment Tool</i> <i>Assessment Criteria: Components of a Marketing Strategy, AGR109–1</i> <i>Standard</i> <i>Identify basic components of the marketing strategy to a standard of 1 on the rating scale</i>	80
research career clusters related to marketing an agriculture/horticulture commodity, product or service	given access to current information on career opportunities in marketing an agriculture/horticulture commodity, product or service, completing a research project on one or more career clusters in agriculture marketing <i>Assessment Tool</i> <i>Career Search: Introductory Level, AGRCAR–1</i> <i>Standard</i> <i>Complete research to a standard of 1 on the rating scale</i>	20

MODULE AGR109: MARKETING FUNDAMENTALS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Marketing Principles	<i>The student should:</i> - research local, national and international markets for an agriculture/horticulture commodity, product or service - distinguish between non-regulated (open) and regulated (closed) marketing systems - identify and compare viable marketing alternatives for the commodity, product or service; e.g., - direct producer marketing - open markets - marketing boards - cooperatives - identify factors that influence pricing of the commodity, product or service; e.g., - market analysis - supply and demand - cost factors - consider the effectiveness of different types of packaging and labelling; e.g., - for consumer purposes - as a marketing tool - assess the impact of advertising and promotion on personal preferences and consumer decisions.	If studied in sequence with AGR103: Production Basics and/or AGR106: Consumer Products and Services, this module provides opportunities for students to examine marketing strategies for a commodity/product which they have already produced. Research the role of consumer preferences in determining markets. Visit a supermarket and note grades, date, stamping, etc. Compare methods of packaging. Examine trends in promotional and marketing strategies. Design/evaluate an approach to marketing.

MODULE AGR109: MARKETING FUNDAMENTALS (continued)

Concept	Specific Learner Expectations	Notes
Career Clusters	<i>The student should:</i> - research career clusters related to marketing an agriculture/horticulture commodity, product or service; e.g., - market survey - advertising and promotion - distribution and retail services - product development - support services - gather employment statistics from one or more career clusters; e.g., - types of careers - number of workers - employment trends - predict career opportunities and trends from employment statistics - gather information regarding agriculture/horticulture marketing in the future, and resulting career opportunities.	Individual/group research and presentation. Interviews. Contact the "Career Hotline" (telephone: 1-800-661-3753). See National Occupational Profiles (NOC).

MODULE AGR110: APPLICATIONS OF AGRICULTURE TECHNOLOGY

Level: Introductory

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to a construction/fabrication, greenhouse, mechanics and/or science laboratory is recommended

Students describe applications of research and technology within an agriculture or horticulture industry.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> explain how research and technology influence the development of agriculture products, methods and services	<i>Assessment of student achievement will be based on:</i> - preparing a chart/display that identifies and describes: - a range of needs/problems addressed by the agriculture/horticulture industry within the last twenty years - specific products, processes or services developed in response to each need/problem - applications of research and technology in developing each product, process or service <i>Assessment Tool</i> <i>Sample Chart: Product Development in the Agriculture/Horticulture Industry, AGR110–1</i> <i>Standard</i> <i>Complete a chart/display that identifies products and technologies developed in response to each of <u>ten</u> problems/needs</i>	20
research current applications of technology in agriculture production, processing and marketing	- completing a research project on current applications of one or more technologies in <u>each</u> of the following areas: - agriculture/horticulture production - agriculture/horticulture processing - agriculture/horticulture marketing <i>Assessment Tool</i> <i>Research Process: Applications of Technology, AGR110–2</i> <i>Standard</i> <i>Complete all components of research to a standard of 1 on the rating scale</i>	30

MODULE AGR110: APPLICATIONS OF AGRICULTURE TECHNOLOGY (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> design a simple technology that addresses a current need in agriculture	<i>Assessment of student achievement will be based on:</i> - given a specific need within an agriculture or horticulture industry, constructing a drawing/model of a technological system designed to address that need. Drawing/model to address: - component parts and principles of operation - efficient use of resources - human and environmental safety <i>Assessment Tool</i> <i>Project Assessment: Technology Design, AGRTEC</i> <i>Assessment Criteria: Diagrams and Technical Drawings, AGRDRA</i> <i>Standard</i> <i>Complete the design <u>and</u> drawing/model to a standard of 1 on the rating scale</i>	50
demonstrate basic competencies.	observation of individual effort and interpersonal interaction during the learning process <i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR110: APPLICATIONS OF AGRICULTURE TECHNOLOGY (continued)

Concept	Specific Learner Expectations	Notes
Influences of Technology	<i>The student should:</i> • explain technology as the application of knowledge gained from research to solve practical problems in agriculture • identify and describe different forms of technology used in agriculture; e.g., – machines – planning/monitoring/management processes – new plant and animal species • consider issues and/or conflicts resulting from the adoption of one or more technologies in agriculture; e.g., – economic – political – environmental – health • predict future trends in research and technology based on current challenges facing the agriculture industry • relate specific technologies to current and emerging career paths in the agriculture industry.	Improvements in effectiveness, efficiency and quality of life. Invite local industry and resource persons. Statistical surveys of technology impacts. Consider: • energy use • safety concerns • environmental issues. Compare manual and mechanical approaches.
Applications of Technology	• describe applications of research and technology in addressing specific plant production needs; e.g., – seed bed preparation/soil fertility – planting/harvesting – weed and pest control – plant propagation – maintaining soil moisture levels – improved production and yields	Independent/group research and presentation. For example: • zero tillage fertilizers • air seeders and combines • hydroponics and irrigation. Predict future production technologies. Invite local veterinarian as a resource person.

MODULE AGR110: APPLICATIONS OF AGRICULTURE TECHNOLOGY (continued)

Concept	Specific Learner Expectations	Notes
Applications of Technology (continued)	<i>The student should:</i> - describe applications of research and technology in addressing specific needs within the livestock production industry; e.g., - animal handling - animal housing - nutrition - health - waste management - breeding management - improved production and yields - describe specific applications of research and technology in agriculture processing; e.g., - processing systems - quality control - pollution control - preserving perishable products - packaging and storage - describe specific applications of research and technology in agriculture marketing; e.g., - enterprise budgets - communication - advertising and promotion - commodity sales - product distribution.	For example: - hormone-induced yields - electronic management systems - embryo transfer - artificial insemination. Provides a good introduction to AGR310: Applications of Biotechnology. Predict future processing technologies. Predict future marketing technologies.

MODULE AGR110: APPLICATIONS OF AGRICULTURE TECHNOLOGY (continued)

Concept	Specific Learner Expectations	Notes
Technology Design	<i>The student should:</i> • identify a need within an agriculture or horticulture industry • conduct research regarding the need; e.g., – talk to others in order to clarify ideas – consider similar needs and how they were addressed – make reasoned judgments regarding design potential • generate ideas and alternatives regarding a mechanical system and/or process that will address the need • select the most appropriate alternative and design the technology • construct a drawing/model of the technology by following plans that have been established • assess the design process and technology outcomes in relation to: – original needs and design intentions – efficient use of resources – human and environmental safety • suggest possible improvements to the design process and/or technology outcomes.	Technology as problem solving. Drawing/designing. Constructing models. Effectiveness. Efficiency. Safety in use.

MODULE AGR111: RESOURCE MANAGEMENT AND CONSERVATION

Level: Introductory

Theme: Management and Conservation

Prerequisite: None

Module Parameters: Access to agriculture industry and government agencies responsible for resource management is recommended

Students describe practices used to manage water, soil and land use, and present the results of research on one or more related issues in agriculture.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the nature and extent of Alberta's water resource, and practices for managing its use	<i>Assessment of student achievement will be based on:</i> - given outline maps of Alberta, locating and describing: - four major rivers and four major lakes - geographic areas where irrigation is a common practice <i>Assessment Tool</i> <i>Task Checklist for Mapping, AGRMAP</i> <i>Standard</i> <i>Complete applicable mapping tasks to a standard of 1 on the rating scale</i> - explaining three or more practices used in Alberta to manage limited and/or excess water supplies for agriculture <i>Assessment Tool</i> <i>Knowledge/Application Assessment: Water Management Practices, AGR111-1</i> <i>Standard</i> <i>Respond to a standard of 1 on the rating scale</i>	25

MODULE AGR111: RESOURCE MANAGEMENT AND CONSERVATION (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the nature and characteristics of soil in Alberta, and practices for managing its use	<i>Assessment of student achievement will be based on:</i> - a presentation or report that describes the characteristics of soil in Alberta and its influence on agriculture practices. Presentation/report to address: - the identification of major soil zones in Alberta - the characteristics of soil within each zone and their influence on agriculture - explanations of three or more soil management practices commonly used in Alberta <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE-1</i> <i>Standard</i> <i>Achieve a minimum rating of 1 on the rating scale for Presentations/Reports</i>	25
examine different uses of land in rural and urban Alberta, and factors upon which land use decisions are made	- completing a research project on rural and urban land use in Alberta. Research to include: - examples of five rural and five urban land uses - consideration of factors involved in making each land use decision - development of a plan (including a 2-D/3-D model) for the use of a specific piece of rural or urban land <i>Assessment Tool</i> <i>Research Process: Rural and Urban Land Use, AGR111-2</i> <i>Standard</i> <i>Complete all components of research to a standard of 1 on the rating scale</i>	25

MODULE AGR111: RESOURCE MANAGEMENT AND CONSERVATION (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - present the results of research on one or more issues involving water, soil or land use in agriculture - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given a current issue regarding water, soil or land use for agriculture in Alberta: - negotiating and debating the issue while assuming the role of one or more interest groups - preparing a presenting a position paper that outlines a responsible plan of action <i>Assessment Tools</i> <i>Negotiation and Debate, AGRNEG-1</i> <i>Position Paper: Resource Management, AGR111-3</i> <i>Standard</i> <i>Address criteria in negotiation/debate and the position paper to a standard of 1 on the rating scale</i> - observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	25 Integrated throughout

Concept	Specific Learner Expectations	Notes
Water Management	<i>The student should:</i> - describe the nature and extent of water resources in different regions of Alberta, and their potential to support agriculture - identify physical, chemical and biological characteristics of water that determine its suitability for use in agriculture	Water resources will include: - precipitation - surface water - ground water. Interpret charts and maps of precipitation. Investigate the water cycle and its role in replenishing water supplies.

MODULE AGR111: RESOURCE MANAGEMENT AND CONSERVATION (continued)

Concept	Specific Learner Expectations	Notes
Water Management (continued)	<i>The student should:</i> - research techniques used to manage limited and excess water supplies in agriculture; e.g., - irrigation, storage, conservation practices - diversion, drainage, flood control - cite examples of legislation used to manage the water resource in Alberta - consider the effects of agricultural practices on water quality - explain the impacts of limited, excessive or inappropriate water supplies on humans, livestock, crops, wildlife and ecosystems - propose strategies for managing water within a specific rural, urban and/or indoor agriculture environment.	Compare effective strategies with ineffective strategies. Examples: - water rights - pollution control. Identify zones in which rainfall is greatest and least in relation to prevailing winds and topography. Consider trade-offs in water use.
Soil Management	- describe the nature and composition of soils present in different regions of Alberta, and their potential to support agriculture - identify physical, chemical and biological characteristics of soil that determine its suitability for use in agriculture - consider the advantages and disadvantages of different management practices; e.g., - chemical treatments, addition of organic material - cultivation, no tillage practices - water conservation practices - explain the impacts of soil quality on crops and livestock - propose strategies for managing soil within a specific rural, urban and/or indoor environment.	Investigate: - soil development process - soil functions - soil zones and classification - mineral, organic, air and water content. Compare different soil types in relation to water retention/movement. Nutrient cycles. Organic and inorganic nutrients. Cite practices leading to: - erosional losses - nutrient losses. Alternatives in soil management. Prepare and observe compost.

MODULE AGR111: RESOURCE MANAGEMENT AND CONSERVATION (continued)

Concept	Specific Learner Expectations	Notes
Land Use	<i>The student should:</i> - describe different uses of land in rural and urban Alberta; e.g., - resource development - urban development - recreation/protected and natural areas - transportation corridors - define and give examples of multiple use, conservation and sustained yield within the context of water, soil and land use - survey legislation and policies used to manage land in Alberta; e.g., - land zoning/classification - environmental impact assessment - determine appropriate uses for land in agriculture by considering: - soil characteristics and topography - water and climate - market value of products - environmental stewardship.	Research public and private land stewardship agencies. Examine historical changes in land use. Set goals for land use in an area. Identify concerns related to land use: - overgrazing - depletion of moisture/nutrients - soil erosion - removal of natural pest control organisms. Assess alternative uses of a specific land site: - agriculture - wood land - recreation - wildlife habitat - building site.
Issues in Resource Management	- present the results of research on an issue involving water, soil or land use in agriculture; e.g., - identify major viewpoints and stakeholders - distinguish among facts, opinions and beliefs - outline alternatives and consequences - clarify a position with respect to the issue by analyzing information gathered.	Contact local government agencies. Collect news articles. Computer simulations: "Sim City" "Sim Earth" "Global Effect".

MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION E: INTERMEDIATE LEVEL

The following pages define the curriculum and assessment standards for the intermediate level of Agriculture.

Intermediate level modules help students build on the competencies developed at the introductory level and focus on developing more complex competencies. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Module AGR202:	Animal Husbandry and Health Care	E.3
Module AGR203(a):	Field Crops I	E.9
Module AGR203(b):	Nursery and Greenhouse Crops I.....	E.15
Module AGR204:	Livestock, Poultry and Animal Specialties I.....	E.21
Module AGR205:	Agrifoods I.....	E.29
Module AGR206:	Landscape and Turf Management I	E.33
Module AGR207:	Pets and Equine I	E.39
Module AGR208:	Floristry I	E.45
Module AGR209:	Marketing I.....	E.51
Module AGR210:	Controlled Growing Environments.....	E.55
Module AGR212:	Soils Management I	E.61
Module AGR213:	Integrated Pest Management.....	E.67

MODULE AGR202: ANIMAL HUSBANDRY AND HEALTH CARE

Level: Intermediate

Theme: Social and Cultural Perspectives

Recommended

Prerequisite: Workplace Safety Practices (CTR221)

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to animal care.

Module Parameters: Access to a domestic animal and an appropriate animal confinement structure is required; it is recommended that off-campus placements be obtained for the development of practical skills in animal care; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Note: This module can be combined with other modules from Agriculture and/or Career Transitions to provide opportunities for students to develop technical competencies within the *Alberta Green Certificate Training Program* (Alberta Agriculture, Food and Rural Development). Opportunities may also exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs). See Section H (Linkages/Transitions) of this Guide for further information.

Students apply principles of animal science and health technology in providing care for a domestic animal.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify and describe indicators of health in a domestic animal and factors that contribute to a healthy animal environment	<i>Assessment of student achievement will be based on:</i> completing a research project on factors that contribute to the health and well-being of a domestic animal. Research to focus attention on indicators of health in the animal species, and normal/abnormal vital signs, behaviours and environmental conditions <i>Assessment Tool</i> <i>Research Process: Animal Health and Welfare, AGR202-1</i> <i>Standard</i> <i>Conduct research to a standard of 2 on the rating scale.</i>	30

MODULE AGR202: ANIMAL HUSBANDRY AND HEALTH CARE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills in providing care for a domestic animal	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills within each of the following areas of animal care: – feeding – housing – handling and restraint – health and well-being <i>Assessment Tool</i> <i>Task Checklist: Animal Husbandry and Health Care, AGR202-2</i> <i>Lab Assessment: Animal Care, AGRLAB-ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in each area of task and lab assessment</i> - maintaining an anecdotal record of tasks performed in providing care for a domestic animal <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG-ANM</i> <i>Standard</i> <i>Completing all sections of the log/record for animal care tasks performed over a negotiated/contracted period of time.</i>	50

MODULE AGR202: ANIMAL HUSBANDRY AND HEALTH CARE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> propose a rationale and strategy for addressing animal welfare	<i>Assessment of student achievement will be based on:</i> - developing a plan for animal welfare that involves: - a review of historical concerns regarding animal welfare - a comparison of animal welfare and animal rights - a strategy for maintaining animal welfare based on: - ethical, economic and social perspectives - welfare needs of the animal - current codes of practice - alternatives and consequences - a recommended plan for action <i>Assessment Tool</i> <i>Assessment Criteria: Animal Welfare, AGR202–3</i> <i>Standard</i> <i>Develop a plan for animal welfare to a standard of 2 on the rating scale.</i>	20
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR202: ANIMAL HUSBANDRY AND HEALTH CARE (continued)

Concept	Specific Learner Expectations	Notes
Health Factors	<i>The student should:</i> • identify and describe indicators of health in a selected animal species; e.g., – physical signs of good and poor health – normal and abnormal vital signs – symptoms of disease and parasites – normal and abnormal behaviour. • describe normal/abnormal animal physiology and anatomy • describe normal/abnormal feed sources, and the impact of nutrient deficiencies on animal health • identify agents and sources of stress for animals, and their implications for health • describe characteristics of a healthful animal environment, and conditions that can place an animal's health or safety at risk; e.g., – sanitation – housing – methods of restraint	List and describe anatomy systems. Discuss relationships between physiological systems. Suggested resource: "Recommended Code of Practice for the Care and Handling of Farm Animals" (series available from Agriculture Canada). Invite local veterinarian as a resource person.
Safe Handling and Care	• demonstrate ethical behaviours in providing care for an animal • consider contributions of technology in current animal husbandry and health care practices; e.g., – nutrition – disease prevention and treatment – reproduction – kennel and cage management • explain basic feed requirements in specific situations; e.g., – maintenance – growth or fattening – pregnant or lactating mothers	Plan and provide an appropriate environment for a domestic animal. Field trips and job shadowing for first-hand observation of safe handling and care techniques. Visit a feed mill.

MODULE AGR202: ANIMAL HUSBANDRY AND HEALTH CARE (continued)

Concept	Specific Learner Expectations	Notes
Safe Handling and Care (continued)	<i>The student should:</i> • identify shelter needs, and provide/maintain desirable handling and confinement structures • monitor vital signs and examine for disease, parasites and other common ailments • recognize abnormal behaviour, and practise intervention strategies for a sick animal; e.g., – reduce stress – administer emergency first aid – treat/control disease and other ailments – administer medication • provide appropriate care for young and/or newly born animals • describe veterinary services that are available, and the protocol for accessing these services.	Invite local veterinarian and/or industry worker as resource person. Research how antibiotics and vaccines work. Given an emergency animal situation, describe appropriate methods of dealing with the emergency.
Animal Welfare	• distinguish between animal welfare and animal rights • explain the importance of maintaining safe domestic and market-driven environments for animals • examine different perspectives regarding an issue in animal welfare; e.g., – ethical – economic – social • identify and describe government codes and regulations intended to address animal welfare • identify and describe organizations in the community that address animal welfare • outline a protocol for responding to an animal welfare issue.	Gather relevant news articles. Student debates on animal welfare issues. Identify human attitudes/skills to which animals respond. Complete a research paper. Contact resource persons from: • Alberta Agriculture, Food and Rural Development • the SPCA • Humane Society • Alberta Foundation for Animal Care.

MODULE AGR203(a): FIELD CROPS I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisite: Production Basics (AGR103); Workplace Safety Practices (CTR221)

Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to crop production.

Module Parameters: Access to a land laboratory will be required; facilities should permit students to perform practical skills in two or more areas of crop production (e.g., soil preparation, seeding/propagation, cultivation, irrigation, fertilizing, pest and disease control, harvesting); it is recommended that off-campus placements be obtained for the development of practical skills in crop production; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Note: This module can be combined with other modules from Agriculture and/or Career Transitions to provide opportunities for students to develop technical competencies within the *Alberta Green Certificate Training Program* (Alberta Agriculture, Food and Rural Development). Opportunities may also exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs). See Section H (Linkages/Transitions) of this Guide for further information.

Students apply knowledge of materials and processes in growing a field crop, focusing attention on plant anatomy and identification, growth requirements, physical structures and equipment, and related career opportunities. Potential areas of specialization include the primary production of cereals, forage, oil seeds, pulse crops, mushrooms, spices/herbs, vegetables, fruits, medicinal plants and exotic plants.

MODULE AGR203(a): FIELD CROPS I (continued)

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • apply knowledge of plant anatomy and identification to field crop species	<i>Assessment of student achievement will be based on:</i> • given access to on-site (or photographed) Alberta field crop species, identifying selected species according to: – common name – general characteristics/growth habits – basic structural parts. Identification to include, where possible, structural parts of the root, stem, leaf and flower/seed <i>Assessment Tools</i> <i>Identification Guide: Field Crop Species, AGRIDE–FLD</i> <i>Information Sheet: Field Crop Species, AGRINF–FLD</i> <i>Standard</i> <i>Identify 10 Alberta field crop species by common name, growth habit and basic structure</i> • given a range of field crop species grown in Western Canada, conducting research on the unique characteristics of each species and their significance in the production system <i>Assessment Tools</i> <i>Research Process, CTSRES</i> <i>Standard</i> <i>For each of 10 field crop species, identify <u>three</u> or more unique characteristics of particular importance in the production system</i>	20
• demonstrate knowledge and safe use of basic equipment used in crop production	• demonstrating knowledge and safe use of basic equipment pertinent to <u>two</u> areas of crop production <i>Assessment Tool</i> <i>Task Checklist: Field Crops I, AGR203(a)–1</i> <i>Lab Assessment: Plant Production, AGRLAB–PLT</i> <i>Standard</i> <i>Achieve a minimum performance rating of 3 in applicable areas of task and lab assessment</i>	20

MODULE AGR203(a): FIELD CROPS I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills in planting, growing and/or harvesting a field crop	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills within <u>two</u> of the following areas of crop production: - soil preparation - seeding/propagation - crop cultivation - irrigation - fertilizing - pest/weed/disease control - harvesting <i>Assessment Tool</i> <i>Task Checklist: Field Crops I, AGR203(a)–1</i> <i>Lab Assessment: Plant Production, AGRLAB–PLT</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i> - maintaining an anecdotal record of production tasks performed in <u>two</u> areas of crop production <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG–PLT</i> <i>Standard</i> <i>Completing all sections of the log/record for each production task performed over a negotiated/ contracted period of time</i>	50
research career clusters related to field crop production	given career information relevant to field crop production, completing a research project on one or more career clusters within the industry <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR–2</i> <i>Standard</i> <i>Complete research to a standard of 2 on the rating scale</i>	10
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR203(a): FIELD CROPS I (continued)

Concept	Specific Learner Expectations	Notes
Plant Anatomy and Identification	<i>The student should:</i> • identify field crops grown in Western Canada according to: – common name – general characteristics/growth habits – basic structural parts • describe the structure, function and growth habits of field crop species, and their significance to the producer; e.g., – cells and tissues – roots – stems – leaves – flowers and fruits • explain basic plant processes and related terminology; e.g., – water and nutrient intake – respiration – photosynthesis – transpiration • identify field crops that are suited to specific applications in Alberta; e.g., – vegetable and fruit crops – pulse crops – oil seeds – specialty crops.	Draw, label and list functions of specific plant structures. Prepare a seed display of different field crop species. Assembled displays of seed varieties can be obtained from: • Canadian Wheat Board • Canadian Grains Institute. Prepare/examine microscope slides of plant parts/cross-sections. Plant collections and displays. Prepare models and/or mounts.
Production Equipment	• identify types of equipment that are used at each stage of production; e.g., – hand and/or power equipment used in seeding/planting, tillage, water/fertilizer application and harvest • handling equipment, such as trucks, tractors, conveyors and augers	

MODULE AGR203(a): FIELD CROPS I (continued)

Concept	Specific Learner Expectations	Notes
Production Equipment (continued)	<i>The student should:</i> - consider criteria relevant to the selection and/or design of production equipment; e.g., - function, operation and maintenance - safety efficiency - ethical, legal and environmental factors - economics and cost - identify policy, legislation and safe practices relevant to the use of equipment and crop inputs.	
Production Skills	- identify basic physical requirements for producing field crops; e.g., - water - light (quantity, quality, duration) - temperature - air - space variables - nutrients - describe how weather and climate may affect production activities - relate principles of nutrition to production practices; e.g., - function and sources of essential nutrients - identifying excesses and deficiencies - fertilizer formulation - describe the symptoms, treatment and prevention of major pests, diseases and ailments that affect the health of plants; e.g., - identification, symptoms and treatment - cultural, mechanical, biological and chemical methods of control	Design/conduct experiments that monitor the effect of environmental factors on growth. Calculate germination rates. Recognize nutrient deficiencies. Use <u>non-toxic and safe</u> materials for controlling plant pests and diseases.

MODULE AGR203(a): FIELD CROPS I (continued)

Concept	Specific Learner Expectations	Notes
Career Clusters	<i>The student should:</i> - research career clusters and the range of occupational opportunities related to producing field crops; e.g., - primary production - agriscience/production management - resource management - support services - assess current employment opportunities based on employment statistics - gather information regarding trends in field crop production, and future career opportunities.	Individual/group research and presentation. Consider: - job description - employment markets - education/training - wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR203(b): NURSERY AND GREENHOUSE CROPS I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisite: Production Basics (AGR103)

Module Parameters: Access to a land laboratory and/or controlled growing environment will be required; instructor training in the use of pesticides (e.g., Pesticide Applicator/Dispenser Certificate) is recommended

Facilities should permit students to perform practical skills in three or more areas of nursery or greenhouse crop production (e.g., soil preparation, propagation, transplanting, cultivation, watering and fertilizing, pest and disease control).

Students apply knowledge of materials and processes in growing a nursery or greenhouse crop, focusing attention on plant anatomy and identification, growth requirements, physical structures and equipment, and related career opportunities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • apply knowledge of plant anatomy and identification to nursery and greenhouse plants	<i>Assessment of student achievement will be based on:</i> • given access to on-site (or photographed) tree, shrub, perennial, annual and/or tropical plant species/ varieties used in the nursery and greenhouse industry, identifying selected specimens according to: – common and botanical names – growth habit and taxonomy – specific applications in Alberta <i>Assessment Tools</i> <i>Identification Guide: Nursery and Greenhouse Plants, AGRIDE-NUR</i> <i>Information Sheet: Nursery and Greenhouse Plants, AGRINF-NUR</i> <i>Standard</i> <i>Identify 10 tree, shrub, perennial, annual and/or tropical plant species/varieties</i>	20

MODULE AGR203(b): NURSERY AND GREENHOUSE CROPS I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills in growing a nursery or greenhouse crop	<i>Assessment of student achievement will be based on:</i> - a concept test in which the student demonstrates knowledge of: - basic plant structures (including cell, tissue, stem, leaf, root, flower and fruit) and their function in plant growth and development - the life cycles (including growth stages and duration) of annuals, biennials and perennials <i>Assessment Tools</i> <i>The Commercial Greenhouse, LRDC</i> <i>Standard</i> <i>60% of the questions answered correctly</i> - demonstrating practical skills within <u>three</u> of the following areas of plant production: - preparation of the growing medium/seed bed - propagation - transplanting - crop cultivation - watering and fertilizing - control of plant pests and diseases involving the use of non-toxic and safe materials <i>Assessment Tool</i> <i>Task Checklist: Nursery and Greenhouse Crops I, AGR203(b)-1</i> <i>Lab Assessment: Plant Production, AGRLAB-PLT</i> <i>Standard</i> <i>Achieve a minimum performance rating of 1 in applicable areas of task assessment</i> - maintaining an anecdotal record of all production tasks completed <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG-PLT</i> <i>Standard</i> <i>Completing all sections of the log/record for each production task performed</i>	60

MODULE AGR203(b): NURSERY AND GREENHOUSE CROPS I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe hand and power equipment and related supplies used in nursery and greenhouse crop production	<i>Assessment of student achievement will be based on:</i> explaining the types, function and safe use of hand and power equipment and supplies relevant to each stage of plant production <i>Assessment Tool</i> <i>Information Sheet: Hand/Power Equipment and Supplies, AGRINF-EQU</i> <i>Standard</i> <i>Completing all sections of the information sheet for hand/power equipment and supplies relevant to <u>three</u> areas of plant production</i>	10
research career clusters related to nursery or greenhouse crop production	given career information relevant to nursery or greenhouse crop production, completing a research project on one or more career clusters within the industry <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> <i>Research must be conducted to a standard of 2 on the rating scale</i>	10
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Plant Anatomy and Identification	<i>The student should:</i> - describe the structure, function and growth habits of plants; e.g., – cells and tissues – roots – stems – leaves – flowers and fruits	Draw, label and list functions of specific plant structures.

MODULE AGR203(b): NURSERY AND GREENHOUSE CROPS I (continued)

Concept	Specific Learner Expectations	Notes
Plant Anatomy and Identification (continued)	<i>The student should:</i> - explain basic plant processes and related terminology; e.g., - water and nutrient intake - respiration - photosynthesis - transpiration - identify nursery or greenhouse plants; e.g., - using common names - using botanical nomenclature - identify plants that are suited to specific applications; e.g., - potted and bench-grown greenhouse crops - vegetable and fruit crops - field and container-grown nursery crops - specialty crops.	Prepare models and/or mounts. Consult with Science teachers. Demonstrate storage of solar energy in plants. Plant collections and displays. Prepare/examine microscope slides of plant parts/cross-sections.
Production Skills	- identify basic physical requirements for producing a nursery or greenhouse crop; e.g., - water - light (quantity, quality, duration) - temperature - air - space variables - nutrients - describe how weather and climate may affect production activities - practice methods used to propagate nursery or greenhouse plants; e.g., - sexual methods - asexual methods - apply principles of nutrition to production practices; e.g., - function and sources of essential nutrients - identifying excesses and deficiencies - fertilizer formulation	Design/conduct experiments that monitor the effect of environmental factors on growth. Calculate germination rates. Recognize nutrient deficiencies. Grow plants suitable for sale.

MODULE AGR203(b): NURSERY AND GREENHOUSE CROPS I (continued)

Concept	Specific Learner Expectations	Notes
Production Skills (continued)	<i>The student should:</i> - implement appropriate strategies for the treatment and prevention of major pests, diseases and ailments that affect the health of plants; e.g., – identification, symptoms and treatment – cultural, mechanical, biological and chemical methods of control	Use <u>non-toxic and safe</u> materials for controlling plant pests and diseases.
Structures, Equipment and Supplies	- consider criteria relevant to the selection of structures, equipment and supplies; e.g., – ease of operation/maintenance – safety – cost – environmental impact - utilize appropriate structures in producing nursery or greenhouse crops; e.g., – fences and cold frames – greenhouses - use in a safe manner appropriate hand and power equipment and related supplies at each stage of production - identify policy, legislation and safe practices relevant to the use of structures, equipment and supplies	Design/construct models of effective structures. See “Construction Technologies” (module on agri-structures).
Career Clusters	- research career clusters and the range of occupational opportunities related to producing nursery or greenhouse crops; e.g., – primary production – agriscience/production management – resource management – support services - assess current employment opportunities based on employment statistics - gather information regarding trends in nursery or greenhouse crop production, and future career opportunities.	Individual/group research and presentation. Consider: • job description • employment markets • education/training • wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisites: Production Basics (AGR103); Workplace Safety Practices (CTR221)

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to animal production.

Module Parameters: Access to livestock, poultry or specialty animals and appropriate animal confinement structures is required; it is recommended that off-campus placements be obtained for the development of practical skills in animal production; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Note: This module can be combined with other modules from Agriculture and/or Career Transitions to provide opportunities for students to develop technical competencies within the *Alberta Green Certificate Training Program* (Alberta Agriculture, Food and Rural Development). Opportunities may also exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs). See Section H (Linkages/Transitions) of this Guide for further information.

Students apply knowledge of materials and processes in raising livestock, poultry or other animal commodities, focusing attention on anatomy and identification, rations and feeding, animal handling and restraint, animal health, care for the newborn, and related career opportunities. Potential areas of specialization include the primary production of beef, dairy, poultry, swine, sheep, game, exotics, bees and/or the study of aquaculture.

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the basic anatomy, physiology and breeds of beef, dairy, sheep, swine, poultry or specialty animals	<i>Assessment of student achievement will be based on:</i> - identifying by name and function the basic structural parts of a beef, dairy, sheep, swine, poultry or specialty animal. Identification to include, where possible, structural parts of the head, body, and limbs <i>Assessment Tool</i> <i>Identification Guide: Basic Anatomy and Physiology, AGR204-1</i> <i>Standard</i> <i>Identify by name and function 15 basic structural parts located in the head, body and limb areas of particular importance in the production system</i> - explain vital life processes of respiration, digestion, excretion, growth and reproduction for a livestock species, and the significance of each in the production system <i>Assessment Tool</i> <i>Knowledge/Application Assessment: Vital Life Processes, AGR204-2</i> <i>Standard</i> <i>Respond to a standard of 2 on the rating scale</i> - compare the unique characteristics of two or more breeds of a beef, dairy, sheep, swine, poultry or specialty animal, and describe their significance to the producer <i>Assessment Tool</i> <i>Research Process: Animal Breeds, AGR204-3</i> <i>Standard</i> <i>Conduct research to a standard of 2 on the rating scale.</i>	30

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills in raising, growing and finishing beef, dairy, sheep, swine, poultry or specialty animals	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills within <u>two</u> of the following areas of animal production: – feeding – housing – handling and restraint – health and welfare – care for young <i>Assessment Tool</i> <i>Task Checklist: Livestock, Poultry and Animal Specialties I, AGR204–4</i> <i>Lab Assessment: Animal Care, AGRLAB–ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i> - maintaining an anecdotal record of production tasks performed <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG–ANM</i> <i>Standard</i> <i>Completing all sections of the log/record for animal care tasks performed over a negotiated/contracted period of time</i>	50
demonstrate appropriate use of basic structures and equipment used in animal production	demonstrating knowledge and safe use of basic structures and equipment pertinent to each area of animal production <i>Assessment Tool</i> <i>Task Checklist: Livestock, Poultry and Animal Specialties I, AGR204–4</i> <i>Lab Assessment: Animal Care, AGRLAB–ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i>	10

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research career clusters related to beef, dairy, sheep, swine, poultry or specialty production	<i>Assessment of student achievement will be based on:</i> given career information relevant to livestock, poultry or specialty animal production, completing a research project on one or more career clusters within the industry <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> <i>Complete research to a standard of 2 on the rating scale.</i>	10
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Concept	Specific Learner Expectations	Notes
Anatomy and Physiology	<i>The student should:</i> - describe the characteristics and function of major anatomical structures in livestock, poultry or an animal specialty - explain vital life processes and related terminology; e.g., – respiration – digestion – waste excretion – growth – reproduction - identify major classes and breeds of commercial species - describe the desirable characteristics of major classes and breeds - identify animal breeds that are suited to specific production and market applications	Draw, label and list functions of specific anatomical structures. Prepare models. Diagrams of animal digestive system. Cattle and sheep have rumens (4-compartment stomachs), which enable them to digest grass and crop wastes. Dairy cattle producers place emphasis on a cow's udder and milk production records. Beef, hog and meat poultry producers place emphasis on muscling for meat production. Identify specific breeds of animals from pictures/slides. Invite district agriculturalist/veterinarian as resource person.
Production Skills	- identify basic physical requirements for producing livestock, poultry or specialty animals; e.g., – water and food – light – temperature – air – space variables - describe how weather and climate may affect production activities	List tasks required to provide proper care for an animal. Potential linkages with Alberta Agriculture Green Certificate Farm Training Program: • Beef • Dairy • Sheep • Swine.

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Concept	Specific Learner Expectations	Notes
Production Skills (continued)	<i>The student should:</i> - describe normal/abnormal feed sources, and the impact of nutrient deficiencies on animal health - explain basic feed requirements in specific situations; e.g.: – maintenance – growth or fattening – pregnant or lactating mothers - describe common pests, diseases and ailments that affect the health of animals within the industry; e.g., – identification, symptoms and treatment – cultural, mechanical, biological and chemical methods of control - administer basic treatments for common pests, diseases and/or ailments; e.g.: – injections – dusting - demonstrate accepted methods of handling and restraining animals - identify policy, legislation and safe practices relevant to raising livestock, poultry or specialty animals.	Flow charts illustrating ration formulation. Develop chart indicating food ingredients needed by an animal. Compare feeding systems. Consider use of: • drug administration • vaccination • feed additives. Examine the role of veterinary services. Research herd health factors and considerations.
Structures and Equipment	- describe housing and confinement structures used in producing livestock, poultry or specialty animals; e.g., – fences and shelters – totally confined rearing structures - clean and disinfect trailers, pens and other animal holding structures - safely operate and maintain equipment used at each stage of production within the industry; e.g., – hand and/or power equipment used in maintaining health and nutrition – handling equipment, such as trucks, conveyors and augers	Illustrate a facility for a specific number of one type of livestock. Construct models of fences, gates, corrals, etc., suited to a specific animal.

MODULE AGR204: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES I (continued)

Concept	Specific Learner Expectations	Notes
Structures and Equipment (continued)	<i>The student should:</i> • evaluate the design and/or construction of structures and equipment in respect to: – function, operation and maintenance – safety and efficiency – ethical, legal and environmental factors – economics and cost • identify policy, legislation and safe practices relevant to the use of structures and equipment within the industry.	Design/construct models of structures and equipment. Picture collection of various types of animal shelters. See Construction Technologies module on agri-structures (CON210).
Career Clusters	• research career clusters and the range of occupational opportunities related to producing livestock, poultry or animal specialties; e.g., – primary production – agriscience/production management – resource management – support services • assess current employment opportunities based on employment statistics • gather information regarding trends in livestock, poultry or specialty production, and future career opportunities.	Individual/group research and presentation. Consider: • job description • employment markets • education/training • wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR205: AGRIFOODS I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisite: Consumer Products and Services (AGR106)

Module Parameters: Access to an agrifoods industry is recommended

Students demonstrate knowledge of materials and processes used in producing an agrifood product or providing a related service, focusing attention on industry inputs, processing technologies and practices, and related career opportunities. Potential areas of investigation include dairy, beef, pork, poultry, cereals, oil seeds, sugar beets, wine, fruit/vegetables and honey.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the range of input materials, food products and/or related services characteristic of an agrifood industry	<i>Assessment of student achievement will be based on:</i> - given access to information concerning an agrifood industry, a presentation or report (written, oral or visual) on: - inputs to processing within the industry, including commodity inputs, human and natural resources and technology - products and/or related services provided by the industry <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE-2</i> <i>Standard</i> <i>Complete the presentation or report to a standard of 2 on the rating scale</i>	20
explain technologies and practices used in processing an agricultural food product or providing a related service	a portfolio that describes technologies and practices used to produce a food product or provide a related service within an agrifood industry. <i>Assessment Tool</i> <i>Portfolio: Profile of an Agrifoods Industry, AGR205-1</i> <i>Standard</i> <i>Prepare and present the portfolio to a standard of 2 on the rating scale</i>	60

MODULE AGR205: AGRIFOODS I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research career clusters within an agrifood industry	<i>Assessment of student achievement will be based on:</i> given information concerning career opportunities within the agrifood industry, completing a research project on one or more related career clusters <i>Assessment Tool</i> <i>Research Process, AGRCAR-2</i> <i>Standard</i> <i>Complete research to a standard of 2 on the rating scale</i>	20
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Nature of the Industry	<i>The student should:</i> - describe the products and/or services produced by an agrifood industry - describe inputs to processing within the industry; e.g., - commodity inputs/raw materials - financial resources - human and natural resources - technology - explain supply management systems that may affect supply of raw materials to the industry; e.g., - government regulations - board management systems - identify environmental factors that affect the viability of the processing industry; e.g., - water - land and soil - weather and climate.	Individual/group research and presentation. Prepare glossary of industry terms. Contact Alberta Food Processors' Association.

MODULE AGR205: AGRIFOODS I (continued)

Concept	Specific Learner Expectations	Notes
Processing Techniques	<i>The student should:</i> • explain the stages and steps in processing the commodity and providing the value-added product and/or service • explain applications of technology in processing the commodity and providing the value-added product and/or service • explain the need for quality control within the processing industry; e.g., – testing/inspection of raw materials – product quality and uniformity • explain systems used to grade products within the industry • describe methods of preserving perishable products within the industry; e.g., – blanching and canning – dehydration and freeze-drying – fermentation – refrigeration and freezing – atmosphere control – food additives • product packaging and labeling practices within the industry • describe transportation and storage practices within the industry, and their impact on industry location and product costs • describe buildings/structures and equipment used in processing, transportation and storage; e.g., – design features – operation and maintenance – safety standards – economics/cost • identify safety concerns, regulations and standards within the industry.	Construct flow charts/ diagrams. Suggested video <i>On the Line</i> (deals with quality control in cheese production). Examine the effect of temperature and packaging on shelf life and quality of a product. Draw a map showing the influence of transportation/storage on industry location. Design/construct models of structures and equipment.

MODULE AGR205: AGRIFOODS I (continued)

Concept	Specific Learner Expectations	Notes
Career Clusters	<i>The student should:</i> - research career clusters and the range of occupational opportunities related to processing an agricultural commodity or providing a value-added product/service; e.g., – processing – business/sales – communications – research and development – quality assurance – transportation – education - assess current employment opportunities based on employment statistics - gather information regarding trends in the agrifood industry and future career opportunities.	Consider: • job descriptions • employment market • education requirements • wage expectations. Individual/group research and presentation. Interviews. Work study/experience. Job Shadowing.

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisite: Consumer Products and Services (AGR106)

Module Parameters: Access to residential, recreational, industrial/institutional and/or roadside landscapes will be required; instructor training in first aid and the use of pesticides (e.g., Standard First Aid, Pesticide Applicator/Dispenser Certificate) is recommended

Facilities and equipment should permit students to perform practical tasks in landscape maintenance (e.g., watering, cultivation/mulching, corrective pruning, mowing/trimming/edging of turfgrass, weed control, installation/removal of plant material) using both hand and power equipment.

Students demonstrate knowledge of materials and processes used to provide landscape and turf maintenance services, focusing attention on plant identification, equipment and supplies, basic landscape maintenance and related career opportunities. Potential areas of specialization include home landscapes, golf courses, recreational fields and parks, institutional/industrial grounds and roadside landscapes.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify plants suitable for use in Alberta landscapes	<i>Assessment of student achievement will be based on:</i> - given access to on-site (or photographed) tree, shrub, ground cover, flower and turfgrass species/varieties used in Alberta landscapes, identifying selected specimens according to: - common and botanical names - general characteristics/growth habits - functional use in Alberta landscapes <i>Assessment Tool</i> <i>Identification Guide: Landscape Plants, AGRIDE-LDS</i> <i>Information Sheet: Landscape Plants, AGRINF-LDS</i> <i>Standard</i> <i>Identify 15 landscape plants, including tree, shrub, ground cover, flower and turfgrass specimens</i>	20

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I(continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe hand and power equipment and supplies used in landscape maintenance	<i>Assessment of student achievement will be based on:</i> - given access to on-site (or photographed) weed species found in Alberta landscapes and turfgrasses, identifying selected specimens according to: - common name - growth habit - management technique <i>Assessment Tool</i> <i>Identification Guide: Landscape/Turfgrass Weeds, AGRIDE-WED</i> <i>Information Sheet: Landscape/Turfgrass Weeds, AGRINF-WED</i> <i>Standard</i> <i>Identify 5 common weeds found in Alberta landscapes and/or turfgrasses</i> - explaining the types, function and safe use of basic hand and power equipment and supplies relevant to: - planting and transplanting - cultivating and aerating - thatch removing and raking - mowing - irrigation - pruning and trimming <i>Assessment Tool</i> <i>Information Sheet: Hand/Power Equipment and Supplies, AGRINF-EQU</i> <i>Sample Test Items: Safety Guidelines for Power Landscape Equipment, AGR206-1</i> <i>Standard</i> <i>Complete all sections of the information sheet for hand and power equipment and supplies relevant to <u>three</u> areas of landscape maintenance; correct response to all questions on a teacher-prepared test covering safety guidelines for the use of <u>two</u> pieces of power landscape equipment</i>	20

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills used to maintain landscape plants and turfgrasses	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills used to provide landscape/turfgrass service within <u>three</u> of the following areas: - watering of plants and/or turf - cultivation and mulching of plants - corrective pruning of plants - mowing, trimming and edging of turfgrass - control of weeds - installation and/or removal of plant material Practical skills will involve the application of safety guidelines (as noted above) in using <u>two</u> pieces of power landscape equipment <i>Assessment Tool</i> <i>Task Checklist: Landscape and Turf Management I, AGR206-2</i> <i>Lab Assessment: Landscape and Turf Management, AGRLAB-LDS</i> <i>Standard</i> Achieve a minimum performance rating of 1 in applicable areas of task assessment - maintaining an anecdotal record of all landscape/turfgrass services performed <i>Assessment Tool</i> <i>Log/Record of Landscape/Turfgrass Services, AGRLOG-LDS</i> <i>Standard</i> Completing all sections of the log/record for each service performed.	50
research career clusters related to landscape and turf maintenance	given current information on career opportunities in landscape and turfgrass maintenance, completing a research project on one or more related career clusters <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> Research must be conducted to a standard of 2 on the rating scale	10

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Plant Identification	<i>The student should:</i> - describe the general characteristics and functional uses of basic plant groups used in landscaping; e.g., - trees - shrubs - ground covers and vines - flowers - turfgrasses - explain criteria used to identify individual plant species; e.g., - plant height and shape - leaf structure and colour - flower or fruit characteristics - identify common tree, shrub, ground cover, flower and turfgrass species used for landscaping in Alberta - distinguish between native and exotic trees, shrubs and ground covers	Create a pictorial display of basic types of landscape plants. Identify and distinguish among annuals, biennials and perennials. Identify 15 or more different landscape plants. Potential linkages with "Landscape Gardener Apprenticeship Training Program".
Equipment and Supplies	- identify and describe hand and power equipment commonly used in landscape maintenance; e.g., - planting and transplanting tools - cultivating and aerating equipment - thatch removing and raking equipment - mowing equipment - irrigation equipment - pruning and trimming equipment - chemical and fertilizer applicators	Practical on-site applications are essential. Follow a set of instructions given as part of a demonstration.

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I (continued)

Concept	Specific Learner Expectations	Notes
Equipment and Supplies (continued)	<i>The student should:</i> - calibrate and/or adjust hand and power equipment as required to perform landscape maintenance tasks - identify and describe organic and inorganic materials commonly used in landscape maintenance; e.g., - growing media - fertilizers - pesticides - demonstrate safe procedures for using equipment and materials in landscape maintenance; e.g., - safe practices and potential hazards - protective clothing - safety labels and instructions - government legislation and regulation - emergency first aid.	Possible power equipment includes: - push mower - lawn tractor - power edger - lawn vacuum - cord trimmer - leaf blower. Possible hand tools include: - hand trimmer - half moon edger - lawn rake - weed puller. CAUTION Completion of safety test PRIOR to use of equipment and materials.
Maintenance Tasks	- describe the cultural requirements of common trees, shrubs, ground cover, flowers and turfgrasses; e.g., - soil - moisture - light - temperature - pruning and/or trimming - identify common weeds and insect pests at different stages of growth - compare biological, cultural and chemical control measures for weeds and plant pests - explain safe practices for mixing and applying fertilizers and chemicals - perform practical tasks used to maintain landscape plants and turfgrasses; e.g., - irrigate and fertilize plants and turf - cultivate and mulch plants - prune plants - mow and trim turf - remove dead and diseased plant materials - control weeds, disease and pests.	Demonstrate maintenance of planting beds, annuals and perennials. Collect/mount a display of common weeds. Potential linkages with "Pesticide Applicator/Dispenser Certificate Courses". Contact: - Lakeland College - Olds College. Discuss beneficial/harmful effects of insects. List advantages/disadvantages of several pesticides. Develop weed control program. Collect and examine some diseased plants.

MODULE AGR206: LANDSCAPE AND TURF MANAGEMENT I (continued)

Concept	Specific Learner Expectations	Notes
Career Clusters	<i>The student should:</i> - research career clusters and the range of occupational opportunities related to landscape and turfgrass management; e.g., - establishment and maintenance - home landscape - golf courses - recreational fields and parks - institutional/industrial grounds - highway and roadside turfgrass - design and construction - equipment maintenance and repair - agriscience/resource management - assess current employment opportunities based on employment statistics - gather information regarding trends in landscape and turfgrass management, and future career opportunities.	Individual/group research and presentation. Consider: - job description - employment markets - education/training - wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR207: PETS AND EQUINE I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisite: Consumer Products and Services (AGR106)

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to animal care.

Module Parameters: Access to a domestic animal and appropriate animal confinement structure is required; it is recommended that off-campus placements be obtained for the development of practical skills in animal care; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Students demonstrate practical skills and approved practices in providing care for a horse (or other domestic animal) for the purpose of pleasure, performance or companionship. The module focuses attention on anatomy, taxonomy and genetics, handling and care techniques, health and nutrition, and related career opportunities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the significance, origin and anatomy of the horse (or other domestic animal)	<i>Assessment of student achievement will be based on:</i> - completing a research project that examines the significance, origin and anatomy of the horse (or other domestic animal). Research to address: - social and economic significance - origin and history - anatomy and physiology - major types and/or breeds <i>Assessment Tool</i> <i>Research Process: Origin and History of the Horse, AGR207-1</i> <i>Standard</i> <i>Complete all components of research to a standard of 2 on the rating scale</i>	20

MODULE AGR207: PETS AND EQUINE I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • apply knowledge of taxonomy and genetics in identifying the types, breeds and characteristics of the horse (or other domestic animal)	<i>Assessment of student achievement will be based on:</i> • given access to information concerning taxonomy and genetics, a presentation or report (oral , written or visual) that describes: – the types and/or breeds of horses (or an other domestic animal) suited to specific applications – dominant/recessive traits and selection criteria/procedures relevant to a specific breed – commonly used systems of breeding, including inbreeding, linebreeding and crossbreeding <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE-2</i> <i>Standard</i> <i>Complete the presentation or report to a standard of 2 on the rating scale</i>	20
	• demonstrating practical skills and approved procedures for animal handling and health care <i>Assessment Tool</i> <i>Task Checklist: Pets and Equine I, AGR207-2</i> <i>Lab Assessment: Animal Care, AGRLAB-ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i> • maintaining an anecdotal record of animal care tasks performed <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG-ANM</i> <i>Standard</i> <i>Complete all sections of the log/record for animal care tasks performed over a negotiated/contracted period of time</i>	50

MODULE AGR207: PETS AND EQUINE I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - research career clusters that involve the care, breeding and training of horses (or other domestic animals) - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given current information on careers that involve the care, breeding and training of horses (or other domestic animals), completing a research project on one or more related career clusters <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> <i>Complete research to a standard of 2 on the rating scale</i> - observation of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	10 Integrated throughout

Concept	Specific Learner Expectations	Notes
Origin, Anatomy and Physiology	<i>The student should:</i> - identify different types of benefits associated with horses (or other domestic animals); e.g., – pleasure – companionship – performance – breeding - describe the origin and history of horses (or an other domestic animal), and factors that lead to domestication - describe the characteristics and functions of major anatomical structures - explain major body systems, processes and related terminology; e.g., – respiration – digestion – waste excretion – growth – reproduction.	Individual/group research and presentation. Draw, label and list functions of specific anatomical structures. Prepare models. Diagrams of animal digestive system.

MODULE AGR207: PETS AND EQUINE I (continued)

Concept	Specific Learner Expectations	Notes
Taxonomy and Genetics	<i>The student should:</i> • identify and describe selected types and breeds of the horse (or other domestic animal) • identify breeds that are suited to specific applications • explain how animal characteristics are passed from generation to generation, and commonly used breeding systems; e.g., – inbreeding – linebreeding – crossbreeding • explain heredity principles relevant to a specific breed of horse (or other domestic animal); e.g., – dominant and recessive traits – selection criteria and procedures.	Contact breed associations for breed promotion material and guest speakers.
Animal Handling and Health Care	• identify environmental factors that need to be considered in providing care for a horse (or other domestic animal); e.g.: – weather and climate – land, soil and water characteristics • identify and describe indicators of health for a horse (or other domestic animal); e.g., – physical signs of good and poor health – normal and abnormal vital signs – symptoms of disease and parasites – normal and abnormal behaviour • describe normal and abnormal animal physiology and anatomy • describe normal/abnormal feed sources, and the impact of nutrient deficiencies on animal health	Invite a local veterinarian to discuss accepted handling and care techniques. List the tasks required to provide proper care for an animal. Food sources and additives.

MODULE AGR207: PETS AND EQUINE I (continued)

Concept	Specific Learner Expectations	Notes
Animal Handling and Health Care (continued)	<i>The student should:</i> • explain basic feed requirements in specific situations; e.g.: – growth – performance – pregnant or lactating mothers • describe the symptoms, treatment and prevention of major pests, diseases and ailments that affect the animal • monitor vital signs and recognize abnormalities • describe approved methods of handling and restraining the animal • describe approved methods of marking or tagging the animal for identification • identify policy, legislation and safe practices relevant to providing animal care.	Flow charts illustrating ration formulation. Develop a chart indicating the food requirements of an animal.
Career Clusters	• research career clusters and the range of occupational opportunities that involve the care, breeding and/or training of horses (or other domestic animals); e.g., – breeding and production – health sciences/veterinary medicine – sales – stable management – performance training – support services • assess current employment opportunities based on employment statistics • gather information regarding trends in equine care, and future career opportunities.	Individual/group research and presentation. Consider: • job description • employment markets • education/training • wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR208: FLORISTRY I

Level: Intermediate

Theme: Technology and Applications

Recommended

Prerequisites: Consumer Products and Services (AGR106)

Module Parameters: Access to a flower arrangement room with refrigeration, a source of water, adequate storage facilities, and work benches/table surfaces for flower arranging; instructor training in floral design and/or relevant industry experience will be an asset

Students demonstrate knowledge of materials and processes used to construct floral designs, focusing on plant and flower identification, simple floral techniques and arrangements, and related career opportunities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify and explain the cultural requirements of cut flowers, foliage and interior plants	<i>Assessment of student achievement will be based on:</i> - given access to on-site (or photographed) cut flowers, foliage and interior plants used in the floral industry, identifying selected specimens by: - common and botanical names - basic characteristics and general use <i>Assessment Tool</i> <i>Identification Guide: Cut Flowers and Interior Plants, AGRIDE-FLO</i> <i>Information Sheet: Cut Flowers and Interior Plants, AGRINF-FLO</i> <i>Standard</i> <i>Identify 10 cut flowers and/or foliage specimens and 5 interior plants</i>	20

MODULE AGR208: FLORISTRY I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> perform basic floral tasks	<i>Assessment of student achievement will be based on:</i> - under supervision and with regard for safety and sanitation, demonstrate correct technique for: - conditioning fresh cut flowers and greenery for storage - handling dried and fabric flowers and greenery - packaging flowers in sleeves and boxes - packaging gift plants and floral arrangements - tying floral bows using ribbon of different widths - wrapping wires of different gauge with floral tape <i>Assessment Tool</i> <i>Task Checklist: Floristry I, AGR208-1</i> <i>Standard</i> <i>All tasks must be performed to a standard of 1 on the rating scale.</i>	20
construct simple floral arrangements	constructing seven or more fresh, dried and/or artificial floral arrangements as identified in <i>Task Checklist: Floristry I</i>. Each arrangement to illustrate the application of design principles outlined in <i>Product Assessment: Floristry I</i> <i>Assessment Tools</i> <i>Development Framework: Floral Construction, AGRDEV-FLO</i> <i>Task Checklist: Floristry I, AGR208-1</i> <i>Product Assessment: Floristry I, AGR208-2</i> <i>Lab Assessment: Floristry, AGRLAB-FLO</i> <i>Project Planning: Floral Design, AGRPLN-FLO</i> <i>Standard</i> <i>Achieve a minimum rating of 1 in product assessment and 1 in lab assessment for each arrangement</i>	50

MODULE AGR208: FLORISTRY I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - research careers within the retail florist industry - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given career information relevant to the retail florist industry, completing a research project on one or more career clusters in floral design services and/or interior plantscape. <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> <i>Research must be conducted to a standard of 2 on the rating scale</i> - observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	10 Integrated throughout

Concept	Specific Learner Expectations	Notes
Plant and Flower Identification	<i>The student should:</i> - identify cut flowers and greenery commonly used in floral design; e.g., - greenhouse/fieldgrown cut flowers - imported cut flowers - foliage and filler - identify interior plants and gift plants; e.g., - tropical flowering and foliage plants - flowering bulbs - relate different growth styles of flowers to their use in floral arrangements - identify dried and artificial materials commonly used in floral design; e.g., - dried flowers and foliage - silk and other fabric materials	Subscribe to Florists' Review (monthly periodical). Visit to a local florist shop. Identify: 10 or more different cut flowers and/or foliage specimens 5 or more interior plants and/or gift plants.

MODULE AGR208: FLORISTRY I (continued)

Concept	Specific Learner Expectations	Notes
Basic Floral Tasks	<i>The student should:</i> - describe techniques for the care of perishable floral materials; e.g., – use of water and preservatives – temperature and humidity control – cleanliness and sanitation – methods of packaging - describe techniques used to condition fresh cut flowers and greenery for storage - describe techniques used to handle and preserve dried flowers and greenery	CAUTION Demonstrate safe use of tools PRIOR to practical activities.
Design and Construction	- describe different construction materials used in floral design; e.g., – wire, tape and adhesive – ribbon – holding devices and containers - demonstrate basic construction techniques used in floral design; e.g., – wiring – taping – bow making - demonstrate and apply basic design principles in constructing floral arrangements; e.g., – colour – composition – balance and symmetry – proportion and scale - construct a boutonniere, corsage, bud vase and rose bowl - construct a simple floral design using fresh, dried and/or artificial materials.	Discuss applications of different design techniques: • symmetrical and asymmetrical • vertical and horizontal • circular and oval. Practical skills should be demonstrated to industry standards (see “Flowers Canada Accreditation Program”).

MODULE AGR208: FLORISTRY I (continued)

Concept	Specific Learner Expectations	Notes
Career Clusters	<i>The student should:</i> - research career clusters and the range of occupational opportunities related to the retail florist industry; e.g., - nursery and greenhouse production - floral design and service - merchandising and marketing - assess current employment opportunities based on employment statistics - gather information regarding trends in floristry, and future career opportunities.	Individual/group research and presentation. Consider: - job description - employment markets - education/training - wage expectations. Interviews. Work study/experience. Job shadowing.

MODULE AGR209: MARKETING I

Level: Intermediate

Theme: Technology and Applications

Prerequisite: Marketing Fundamentals (AGR109)

Module Parameters: Access to an agriculture or horticulture industry is recommended

Students apply knowledge of general marketing principles within the context of an agriculture or horticulture industry, focusing attention on materials and services offered to the consumer through open marketing structures, marketing techniques and related career opportunities.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • apply basic principles of open marketing to an agriculture/horticulture commodity, product or service	<i>Assessment of student achievement will be based on:</i> • developing and presenting a plan for marketing an agriculture/horticulture commodity, product or service through an open marketing structure. Marketing plan to address: – current and potential markets – product supply and/or development – marketing principles and strategies – pricing – packaging and labeling – advertising and promotion – sales and distribution networks <i>Assessment Tool</i> <i>Assessment Criteria: A Marketing Plan, AGR209–1</i> <i>Standard</i> <i>Develop and present the marketing plan to a standard of 2 on the rating scale</i>	80

MODULE AGR209: MARKETING I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - research career clusters and the range of employment opportunities in marketing a commodity, product or service - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given access to current information on career opportunities in marketing an agriculture/horticulture commodity, product or service, completing a research project on one or more career clusters in agriculture marketing <i>Assessment Tool</i> <i>Career Search: Intermediate Level, AGRCAR-2</i> <i>Standard</i> <i>Complete research to a standard of 2 on the rating scale</i> - observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	20 Integrated throughout

Concept	Specific Learner Expectations	Notes
Marketing Principles	<i>The student should:</i> - explain the goals of marketing an agriculture/horticulture commodity, product or service; e.g., - market position and profit margin - image creation and industry strength - price discovery - product exposure - compare potential strategies that might be used to distribute the product or service in the marketplace; e.g., - extensive (open) - selective (niche) - exclusive (franchise)	Consider linkages with the Management and Marketing strand. Access basic marketing textbooks used in this strand; e.g.: <i>Marketing: A Canadian Perspective</i> <i>Marketing: A Global Perspective</i> <i>Marketing Dynamics</i> <i>Marketing Today.</i>

MODULE AGR209: MARKETING I (continued)

Concept	Specific Learner Expectations	Notes
Marketing Principles (continued)	<i>The student should:</i> - illustrate the laws of supply and demand, and factors that cause changes in supply, demand and pricing of the commodity, product or service; e.g., - imports and exports - environmental factors - consumer choices - economic conditions - technology - examine competition in both domestic and international markets, and barriers/restrictions on free trade; e.g., - cultural, ethical, political, legal - economic systems - international organizations - trade agreements - identify sources of market information relevant to the commodity, product or service; e.g., - data base - private consultation - describe the stages through which the agriculture/horticulture product moves en route to the consumer; e.g., - inputs assembly - processing - brokering of product - transport.	Discuss some impacts of recent changes in technology on marketing practices; e.g.: - production - transportation - processing - preserving. Use weekly marketing reports to develop a graph of price trends. Visit an auction, grain elevator, packing house or cannery. Invite marketing specialists to discuss marketing systems. Prepare flow charts/ diagrams of product stages en route to consumer.
Market Development	- consider one or more strategies that may be used to promote an agriculture/horticulture commodity, product or service: e.g., - advertising - personal sales - telemarketing - display - in-store samples - trade shows - assess opportunities for the global marketing of the commodity, product or service; e.g., - the United States and Mexico - nations of the Pacific Rim - other developing nations	

MODULE AGR209: MARKETING I (continued)

Concept	Specific Learner Expectations	Notes
Market Development (continued)	<i>The student should:</i> - explain the role of market research and product development in adapting the commodity, product or service to meet present and future market needs; e.g., - consumer polls - surveys - focus groups - consider factors that influence consumer preferences and the development of new products and markets within the industry; e.g., - ethical, cultural, religious - demographic - environmental - economic - outline market conditions leading to, and steps in altering the product or service, or developing a related product or service.	Design/conduct a consumer survey regarding preferences for agricultural products. Create a new product, design a package and market the product within school/ community. A possible extension activity might be to research the process followed to “patent” a new product or service.
Career Clusters	- research career clusters and the range of occupational opportunities related to marketing an agriculture/horticulture commodity, product or service; e.g., - farm gate market services - wholesale/retail services - distribution and transportation - market research and analysis - product development - advertising and promotion - government services - infer career opportunities and trends from employment statistics - gather information regarding agriculture/horticulture industries in the future, and resulting career opportunities in marketing	Interviews. Work study/experience. Job shadowing. Individual/group research and presentation. Consider: - job description - employment markets - education/training - salary expectations.

MODULE AGR210: CONTROLLED GROWING ENVIRONMENTS

Level: Intermediate

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to a greenhouse structure or confined livestock/poultry housing is required

Students identify essential components of a controlled growing/living environment, and demonstrate techniques used to manage the growing environment within a protected structure.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify and explain essential components of controlled growing/living environments	<i>Assessment of student achievement will be based on:</i> identifying six or more environmental components commonly controlled in protected structures for crop and/or livestock production, and specific technologies/materials used to control each environmental component <i>Assessment Tool</i> <i>Agriscience and Technology, Chapter 16:</i> <i>Controlled Living Environments (LRDC)</i> <i>Standard</i> <i>Complete all components of the "Chapter Review" for Chapter 16: Controlled Living Environments</i>	10

MODULE AGR210: CONTROLLED GROWING ENVIRONMENTS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> suggest ways in which controlled growing/living environments can be adapted for crop production or confinement livestock housing	<i>Assessment of student achievement will be based on:</i> - prepare a design for environmental control that addresses one or more problems in a crop or livestock production venture. Design to address: - identification of a production problem that can be addressed through environmental control - proposed structures and/or equipment that address production problems through partial or complete control of the living environment - accurate working drawings and/or models of the production facility <i>Assessment Tool</i> <i>Project Assessment: Technology Design, AGRTEC</i> <i>Assessment Criteria: Diagrams and Technical Drawings, AGRDRA</i> <i>Standard</i> <i>Complete the design and drawing/model to a standard of 2 on the rating scale</i>	40
demonstrate techniques used to regulate and manage growing environments within a protected structure	- demonstrating practical skills in constructing, assembling and/or using a protected structure to regulate and manage a growing/living environment. Where possible, practical skills will address production needs related to the: - control of temperature, humidity, ventilation and/or lighting - use of watering and feeding systems - control/management of pests and disease - disposal of waste materials <i>Assessment Tool</i> <i>Task Checklist: Controlled Growing Environments, AGR210-1</i> <i>Lab Assessment, AGRLAB-PLT or AGRLAB-ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i>	50

MODULE AGR210: CONTROLLED GROWING ENVIRONMENTS (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - maintaining an anecdotal record of tasks performed in constructing, assembling and/or using a protected structure for production purposes <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG–PLT or AGRLOG–ANM</i> <i>Standard</i> <i>Complete all sections of the log/record for tasks performed over a negotiated/contracted period of time</i> - observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Essential Components	<i>The student should:</i> - define and give examples of controlled growing environments - describe environmental components that are commonly controlled in protected structures; e.g., - temperature - humidity - light intensity - atmosphere	Consider “minimum altering” (e.g., fence or cold frame) and “maximum altering” (e.g., greenhouse or totally confined rearing structure).

MODULE AGR210: CONTROLLED GROWING ENVIRONMENTS (continued)

Concept	Specific Learner Expectations	Notes
Essential Components (continued)	<i>The student should:</i> • explain how specific problems in agriculture production are solved through environmental control • describe control systems and technologies used to maintain temperature, humidity, light and atmospheric gases at specific levels • describe methods of maintaining sanitation and reducing/minimizing contaminants • determine utility/service requirements and energy conservation methods for a controlled growing environment.	Consider: • light quality • light intensity • light exposure time. Individual/small group research and presentation.
Agricultural Applications	• explain applications of controlled growing environments in crop production or confinement livestock housing; e.g., – temperature, light, humidity and atmosphere control systems – feed and watering systems – sanitation and health practices • prepare a design for environmental control that addresses one or more problems in a crop or livestock production venture; e.g., – identify production problems caused by environmental factors – design structures and equipment that address production problems through partial or complete control of the growing environment – prepare accurate working drawings and/or models of the production facility • assess benefits and problems resulting from the use of protected structures in crop production or confinement livestock housing.	Applications should be specific to one area of production. Keep design briefs simple. Simulations: • planning • layout • construction.

MODULE AGR210: CONTROLLED GROWING ENVIRONMENTS (continued)

Concept	Specific Learner Expectations	Notes
Management Practices	<i>The student should:</i> • identify safety hazards and demonstrate safe practices while performing production tasks within a protected structure • regulate and manage the growing environment for a designated crop or livestock species; e.g., – operate control systems to maintain temperature, humidity and ventilation at proper levels – operate artificial lighting and shade-control mechanisms to maintain proper light intensity – regulate watering and feeding systems to ensure nutritional requirements are met • maintain a daily log that details activities regarding production and/or facility management • demonstrate appropriate sanitation and health practices within a protected structure; e.g., – manage/control disease and pests – dispose of waste material • perform routine maintenance services and repairs to enclosed structures and control technologies.	List steps in managing/ maintaining a controlled growing environment. Consider: • heating • lighting • humidity • ventilation • nutrition/watering systems • sanitation.

MODULE AGR212: SOILS MANAGEMENT I

Level: Intermediate

Theme: Management and Conservation

Recommended

Prerequisite/

Corequisite: Resource Management and Conservation (AGR111)

Module Parameters: Access to a science laboratory and land laboratory is recommended

Note: Specific learner expectations in Soils Management I and II are consistent with Soils Investigations (SOIL 100–35) at Olds College. Teachers should contact the Registrar's Office, Olds College, regarding transfer of credit for competencies developed in AGR212 and AGR312.

Students examine soil formation and classification, conduct tests to determine the physical and chemical properties of soils, and explain the impact of soil properties on productivity.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the origin and composition of soils in western Canada	<i>Assessment of student achievement will be based on:</i> a theory test in which the student demonstrates knowledge of the origin and composition of soils in Western Canada <i>Assessment Tool</i> <i>Sample Test Items: Origin and Composition of Soils, Soils Investigations Facilitator's Manual (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i>	15

MODULE AGR212: SOILS MANAGEMENT I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify physical properties of soil and describe their relationship to soil productivity	<i>Assessment of student achievement will be based on:</i> - given an Alberta grassland or forest soil profile, - identifying characteristics of each master horizon - determining the parent material and soil forming factors. <i>Assessment Tool</i> <i>Soils Investigations I Assignment Book (LRDC)</i> <i>Lab Investigations: Soil Profile Analysis, AGR212-1</i> <i>Standard</i> <i>Complete all related exercises in the assignment book; conduct lab investigations to a standard of 2 on the rating scale</i>	15
	a theory test in which the student demonstrates knowledge of the physical properties of soil <i>Assessment Tool</i> <i>Sample Test Items: Physical Properties, Soils Investigations Facilitator's Manual (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i>	20
	- given four soil samples, a soil texture triangle and Munsell colour chart: - manually estimating the relative percentages of sand, clay and silt for each sample - determining the textural class of each soil sample - identifying the colour name and Munsell notation for each soil sample. <i>Assessment Tool</i> <i>Lab Investigations: Soil Texturing, AGR212-2</i> <i>Soils Investigations Materials Kit (LRDC)</i> <i>Standard</i> <i>Conduct lab investigations using equipment/ supplies provided in the materials kit to a standard of 2 on the rating scale</i>	20

MODULE AGR212: SOILS MANAGEMENT I (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify chemical properties of soil and describe their relationship to soil productivity	<i>Assessment of student achievement will be based on:</i> - a theory test in which the student demonstrates knowledge of the chemical properties of soil <i>Assessment Tool</i> <i>Sample Test Items: Chemical Properties, Soils Investigations Facilitator's Manual (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i> - given four soil samples, a pH test kit and an electrical conductivity meter: - measuring soil pH for each soil sample - measuring electrical conductivity for each soil sample. <i>Assessment Tool</i> <i>Lab Investigations: Soil Acidity and Conductivity, AGR212-3</i> <i>Soils Investigations Materials Kit (LRDC)</i> <i>Standard</i> <i>Conduct lab investigations using equipment/ supplies provided in the materials kit to a standard of 2 on the rating scale</i>	15 15
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Soil Development	<i>The student should:</i> - describe major geological processes leading to the origin of soils in western Canada - identify and describe factors that influence the formation of different kinds of soils; e.g., - climate - living organisms - parent materials - topography - time	Contact Department of Instructional Design, Olds College, for additional support materials.

MODULE AGR212: SOILS MANAGEMENT I (continued)

Concept	Specific Learner Expectations	Notes
Soil Development (continued)	<i>The student should:</i> - describe the major components of soil and their relationship to soil productivity; e.g., - minerals - organic matter - air - water - identify master horizons of a soil profile, and relate common horizon suffixes to soil forming factors - interpret and compare the soil profiles of forest and grassland environments - list and describe the soil orders of the Canadian System of Soil Classification; e.g., - distinguishing characteristics - typical horizon sequences.	Assess a local piece of land regarding soil formation factors that have helped to shape soil to its present condition. Demonstrations of soil water holding capacity. Soil profile diagrams.
Physical Properties	- define soil texture and describe textural classes of soil - apply hand-texturing techniques to estimate the texture of a soil sample; e.g., - dry consistence test - moist cast test - ribbon test - define soil structure and describe factors that influence the formation of soil structure - identify different types of soil structures, and relate soil structure to common soil horizons - explain the significance of colour as an indicator of soil conditions, and descriptors used to indicate soil colour - measure soil colour using the Munsell Soil Colour Chart - interpret relationships between physical properties of soil and plant growth.	Hand texturing laboratory. Map soil zones of the prairie provinces. Soil colour laboratory.

MODULE AGR212: SOILS MANAGEMENT I (continued)

Concept	Specific Learner Expectations	Notes
Chemical Properties	<i>The student should:</i> • describe the nature and development of acid and alkaline soils • define and measure soil reaction (pH) • explain active and reserve acidity, and their relationship to the buffering capacity of soil • describe the effect of soil pH on plant growth, and methods of adjusting soil pH • describe the origin and characteristics of saline soils • define and measure soil salinity • describe the effect of soil salinity on plant growth, and strategies for managing saline soils.	Soil pH laboratory. Electrical conductivity laboratory.

MODULE AGR213: INTEGRATED PEST MANAGEMENT

Level: Intermediate

Theme: Management and Conservation

Prerequisite: None

Module Parameters: Access to an agriculture production, horticulture or forest industry is required; instructor training in the use of pesticides (e.g., Pesticide Applicator/Dispenser Certificate) is recommended

Students apply knowledge of biological, cultural and chemical pest-control measures within the context of an agriculture, horticulture or forest industry.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the life cycle and ecology of common pests that occur in an agriculture, horticulture or forest industry	<i>Assessment of student achievement will be based on:</i> - given an agriculture, horticulture or forest industry, identifying and classifying common pests within each of the following categories: - weed (annual, perennial) - insect (order) - disease (bacteria, fungus, virus) - vertebrate <i>Assessment Tool</i> <i>Backyard Pest Management in Alberta (LRDC)</i> <i>Standard</i> <i>Identify and classify three weeds, three insect pests, three diseases and three vertebrate pests</i> - illustrating and describing the anatomy, life cycle <u>and</u> food web for one or more of the pests identified within each category <i>Assessment Tool</i> <i>Assessment Criteria: Diagrams and Technical Drawing, AGRDRA</i> <i>Standard</i> <i>Complete each illustration/description to a standard of 2 on the rating scale</i>	20

MODULE AGR213: INTEGRATED PEST MANAGEMENT (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe biological, cultural and chemical pest control strategies and basic principles of integrated pest management	<i>Assessment of student achievement will be based on:</i> - a presentation or report that describes basic principles and practices, examples and the benefits/costs of: - biological, cultural and chemical pest control - integrated pest management <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE-2</i> <i>Standard</i> <i>Complete the presentation or report to a standard of 2 on the rating scale</i>	20
explain legislation and policies regarding the safe handling, storage and use of chemical and biological control agents	- reading and interpreting label information regarding the safe handling, storage and intended application/use of: - chemical control agents, including emulsifiable concentrates, liquids, wettable powders, dusts, granules and fumigation materials - biological control agents, including predatory insects, infectious organisms and resistant plants <i>Assessment Tool</i> <i>Task Checklist: Integrated Pest Management, AGR213-1</i> <i>Standard</i> <i>Achieve a minimum performance rating of 3 in applicable areas of task assessment</i>	20
develop and implement an integrated pest management program	developing and implementing a basic integrated pest management program for two or more pests within an agriculture, horticulture or forest industry <i>Assessment Tool</i> <i>Task Checklist: Integrated Pest Management, AGR213-1</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task assessment</i>	40
demonstrate basic competencies.	observation of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR213: INTEGRATED PEST MANAGEMENT (continued)

Concept	Specific Learner Expectations	Notes
Life Cycles and Ecology	<i>The student should:</i> - define a pest and describe specific pest problems in agriculture, horticulture or forestry - explain the benefits of pest management to agriculture, horticulture and forestry - describe the biology and life cycles of major groups of pests; e.g., - weeds - insects - diseases - vertebrates - identify and classify a range of common pests; e.g., - mites, ticks - birds - fungi - weeds - insects - rodents - explain the interrelatedness of common pests with ecosystems and environments; e.g., - relationship of soil, water and air characteristics to plant/animal health - food webs and energy chains - environmental factors that limit populations.	A pest is generally considered to be an organism that adversely affects human activities. Therefore, determination of pests will depend upon context. Diagram and explain ecosystem structures. Consider limiting factors on populations in ecosystems. Collect, identify and mount insect and weed pests. Draw/construct food webs and energy chains involving common pests.
Methods of Pest Control	- explain basic principles of biological pest control and give examples of beneficial organisms used to control pest populations; e.g., - predators - parasites - pathogens - explain basic principles of cultural pest control and give examples of cultural practices used to control pest populations; e.g., - soil tillage - crop rotation - clean culture	Case studies on different techniques of control.

MODULE AGR213: INTEGRATED PEST MANAGEMENT (continued)

Concept	Specific Learner Expectations	Notes
Methods of Pest Control (continued)	<i>The student should:</i> • explain basic principles of chemical pest control and give examples of chemical families and pesticide formulations used to control pest populations • describe and give examples of physical and mechanical pest control strategies • identify regulatory bodies and legislation established to assist pest control programs • explain the role of breeding programs in developing organisms that have genetic resistance to pests • assess the advantages and disadvantages of biological, cultural, chemical, physical, mechanical and regulatory pest control programs.	Discuss the importance of rotating chemical groups being used to avoid pest tolerance. Explain genetic resistance.
Integrated Management	• describe the history of pest management • define and give reasons for the development of integrated pest management; e.g., – management versus control perspective – environmental and human health concerns • explain the basic principles and strategies of integrated pest management; e.g., – identification of key parts – biology of crop/host and its ecosystem – ecosystem manipulation – economic threshold levels – pest sampling and monitoring • cite benefits and problems related to the use of integrated pest management as a pest control strategy.	“Control” versus “Management”. Explain the significance of: • economic thresholds • scouting procedures • record keeping.

MODULE AGR213: INTEGRATED PEST MANAGEMENT (continued)

Concept	Specific Learner Expectations	Notes
Practical Procedures	<i>The student should:</i> • identify specific pest problems within an agriculture, horticulture or forest industry • perform pest sampling and monitoring procedures in order to determine the presence of pests, their stage of development and the nature/ extent of damage caused • establish threshold levels that determine when pest control measures should be implemented • identify and apply pest management procedures that are based upon relevant aspects of pest/host biology and the ecosystem • explain safe techniques in pesticide application; e.g., – use of equipment and supplies – mixing and application techniques – clean-up and disposal • assess the impact of pest control practices on human and environmental health.	Invite an agricultural specialist to explain the advantages/ disadvantages of different pest control measures. Suggest reference: Agriscience Fundamentals and Applications (Section 4). Potential linkages with “Pesticide Applicator/ Dispenser Certificate Courses”. Contact: • Lakeland College • Olds College.

MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION F: ADVANCED LEVEL

The following pages define the curriculum and assessment standards for the advanced level of Agriculture.

Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

Module AGR301:	Global Issues in Agriculture	F.3
Module AGR302:	Ethics in Agriculture and Food Production	F.7
Module AGR303(a):	Field Crops II	F.11
Module AGR303(b):	Nursery and Greenhouse Crops II.....	F.17
Module AGR304:	Livestock, Poultry and Animal Specialties II	F.23
Module AGR305:	Agrifoods II.....	F.29
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Module AGR309:	Marketing II	F.51
Module AGR310:	Applications of Biotechnology	F.55
Module AGR311:	Water Management.....	F.59
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Module AGR313:	Environmental Conservation and Consequences.....	F.71

MODULE AGR301: GLOBAL ISSUES IN AGRICULTURE

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisite: None

Module Parameters: Access to government and/or community agencies responsible for agriculture planning, research, management and resource conservation is recommended

Students analyze a range of issues in agriculture, and develop strategies for dealing with agriculture issues within a global context.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> analyze a range of economic, environmental and social issues in agriculture	<i>Assessment of student achievement will be based on:</i> analyzing alternatives and consequences associated with each of five issues in agriculture. Alternatives and consequences to address relevant economic, environmental and social perspectives <i>Assessment Tool</i> <i>Issue Analysis: Alternatives and Consequences, AGR301-1</i> <i>Sample Issues for Research, Analysis and Debate AGRSAM</i> <i>Standard</i> <i>Analyze five issues to a standard of 3 on the rating scale</i>	25
compare issues that involve agriculture in Alberta and Canada to similar issues at a global level	completing a research project that examines an agriculture issue of current significance in Alberta and/or Canada, and compares/relates that issue to similar issue(s) at the global level <i>Assessment Tool</i> <i>Research Process: Local and Global Issues in Agriculture, AGR301-2</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i>	25

MODULE AGR301: GLOBAL ISSUES IN AGRICULTURE (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> develop action plans that address a complex issue in agriculture	<i>Assessment of student achievement will be based on:</i> - given an issue in agriculture that involves interaction among three or more different interest groups: - negotiating and debating the issue while assuming the role of one or more of the interest groups - preparing and presenting a position paper on the issue that outlines a responsible course of action. <i>Assessment Tool</i> <i>Negotiation and Debate, AGRNEG-3</i> <i>Position Paper: Issues in Agriculture, AGR301-3</i> <i>Standard</i> <i>Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale</i>	50
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Issue Analysis	<i>The student should:</i> - identify a range of current social, economic and environmental issues in agriculture - list and categorize concerns being expressed regarding a social, economic and environmental issue in agriculture; e.g., - environmental impacts - nutritional or food safety concerns - social, political or economic factors - ethical concerns - critically analyze a current issue in agriculture; e.g., - identify conflicts among different stakeholder groups - gather information relevant to different sides of the issue - consider the implications of adopting different alternatives.	

MODULE AGR301: GLOBAL ISSUES IN AGRICULTURE (continued)

Concept	Specific Learner Expectations	Notes
The Global Context	<i>The student should:</i> • relate a local social, economic or environmental issue in agriculture to a similar issue at the global level • compare statements made by scientists, different interest groups and the media regarding the issue • consider costs and benefits associated with different approaches for dealing with the issue at local and global levels.	
Action Plans	• prepare a position paper on a complex issue in agriculture; e.g., – clarify the issue and identify related perspectives – develop a position and provide a rationale – outline a personal plan of action • participate in a debate of a complex issue in agriculture while assuming the role of one or more stakeholder groups; e.g., – farmer – environmentalist – animal-welfare advocate – consumer – scientist.	

MODULE AGR302: ETHICS IN AGRICULTURE AND FOOD PRODUCTION

Level: Advanced

Theme: Social and Cultural Perspectives

Prerequisites: None

Module Parameters: Access to government and/or community agencies responsible for agriculture planning, research, management and resource conservation is recommended

Note: Ethical issues may be sensitive for some students. Emphasis should be placed on a “process” for conflict analysis and not on particular positions that may be expressed.

Students identify a range of ethical concerns relevant to agriculture and food production, analyze different points of view regarding agriculture technologies, and clarify a personal position on an ethical issue in agriculture.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • identify a range of ethical issues related to current practices in agriculture	<i>Assessment of student achievement will be based on:</i> • through research, identifying six or more ethical issues resulting from current practices in agriculture and food production. For each issue, a statement of: – current agriculture practice(s) in question – relevant social, economic and environmental perspectives <i>Assessment Tool</i> <i>Research Process, CTSRES</i> <i>Sample Issues for Research, Analysis and Debate, AGRSAM</i> <i>Standard</i> <i>Identify six ethical issues and relevant social, economic and environmental factors for each; issues identified to involve current practices in production, processing and marketing</i>	20

MODULE AGR302: ETHICS IN AGRICULTURE AND FOOD PRODUCTION (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> analyze different points of view regarding a controversial practice in agriculture	<i>Assessment of student achievement will be based on:</i> - an analysis of different points of view regarding a controversial practice in agriculture and food production. Analysis to involve: - clarification of opinions expressed and concerns raised - a comparison of positions adopted by different stakeholder groups - review of information relevant to different sides of the debate - a comparison of costs and benefits associated with different approaches - potential for compromise and/or consensus among stakeholder groups <i>Assessment Tool</i> <i>Issue Analysis: Ethics in Agriculture, AGR302-1</i> <i>Standard</i> <i>Analyze the controversial practice to a standard of 3 on the rating scale</i>	40
establish a position on an ethical issue in agriculture	- given an ethical issue in agriculture: - negotiating and debating the issue while assuming the role of one or more interest groups - developing and presenting a position paper on the issue that outlines a responsible plan of action <i>Assessment Tool</i> <i>Negotiation and Debate, AGRNEG-3</i> <i>Position Paper: Ethics in Agriculture, AGR302-2</i> <i>Standard</i> <i>Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale</i>	40
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR302: ETHICS IN AGRICULTURE AND FOOD PRODUCTION (continued)

Concept	Specific Learner Expectations	Notes
Ethical Issues	<i>The student should:</i> • identify a range of ethical concerns in agriculture; e.g., – animal welfare – land and water use – world food distribution – sustainable production systems – biotechnology applications – genetic diversity – food safety standards • list and categorize different perspectives regarding each concern; e.g., – social – political – environmental – economic.	Discuss and provide a definition for “ethics”. View <i>The Ethics Jungle</i> (a CTS video on ethics in the workplace available from ACCESS). Case studies and suggested teaching activities for developing an understanding of ethical issues concerning agriculture are provided in <i>Issues: An Integrated Approach to Sensitive Science and Society Issues</i> (available from the LRDC).
Issue Analysis	• clarify opinions expressed and concerns raised about a controversial practice in agriculture • compare ethical positions taken by different stakeholder groups; e.g., – producer/processor – environmentalist – animal-welfare advocate – consumer – scientist – politician – business person • gather information relevant to different sides of the discussion • identify costs and benefits associated with different approaches for dealing with the issue • consider the potential for compromise and/or consensus among stakeholder groups.	Remind students that it is the “process” for issue analysis that is important, not particular positions that may be adopted.

MODULE AGR302: ETHICS IN AGRICULTURE AND FOOD PRODUCTION (continued)

Concept	Specific Learner Expectations	Notes
Individual and Shared Actions	<i>The student should:</i> • prepare a position paper on an ethical concern in agriculture; e.g., – clarify the concern and identify differing perspectives – develop a position and provide a rationale – outline a personal plan of action • debate an ethical concern in agriculture and food production; e.g., – conduct research – adopt a position – participate in debate.	

MODULE AGR303(a): FIELD CROPS II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Field Crops I (AGR203(a))

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to crop production. Workplace Safety Practices (CTR2212) is a recommended prerequisite/corequisite.

Module Parameters: Access to a land laboratory will be required; facilities should permit students to perform practical skills in two areas of plant production (e.g., soil preparation, seeding/propagation, cultivation, irrigation, fertilizing, pest and disease control); it is recommended that off-campus placements be obtained for the development of practical skills in crop production; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Note: This module can be combined with other modules from Agriculture and/or Career Transitions to provide opportunities for students to develop technical competencies within the *Alberta Green Certificate Training Program* (Alberta Agriculture, Food and Rural Development). Opportunities may also exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs). See Section H (Linkages/Transitions) of this Guide for further information.

Students demonstrate techniques used to produce a field crop, focusing attention on industry trends, enterprise selection, genetics and reproduction and production skills. Potential areas of specialization include the primary production of cereals, forage, oil seeds, pulse crops, mushrooms, spices/herbs, vegetables, fruits, medicinal plants and exotic plants.

MODULE AGR303(a): FIELD CROPS II (continued)

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research trends in the production and use of new varieties of field crops	<i>Assessment of student achievement will be based on:</i> - completing a research project on trends in the production and use of new and/or different species/varieties of field crops. Research to focus attention on two or more field crop species/varieties, and address: - production and consumption trends within Alberta, Canada and the global community - factors that determine viability of the production enterprise <i>Assessment Tool</i> <i>Research Process: Opportunities in Field Crop Production, AGR303(a)-1</i> <i>Standard</i> <i>Conduct research to a standard of 3 on the rating scale.</i>	20
relate principles of genetics and reproduction to the production of field crop species	- identify major components of a strategy used to maintain/improve the quality and productivity of a field crop species. Strategy to address: - principles of heredity - desirable and undesirable plant traits - selection criteria and procedures - applications of hybridization - standards for grading - current and emerging technologies <i>Assessment Tools</i> <i>Assessment Criteria: Components of a Plant Breeding Strategy, AGR303(a)-2</i> <i>Standard</i> <i>Identify and explain all components of the strategy to a standard of 3 on the rating scale.</i>	30

MODULE AGR303(a): FIELD CROPS II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills used in producing a field crop	<i>Assessment of student achievement will be based on:</i> - demonstrating safe use of basic equipment and practical skills within <u>two</u> of the following areas of crop production: - soil preparation - seeding/propagation - crop cultivation - irrigation - fertilizing - pest/weed/disease control - harvesting <i>Assessment Tools</i> <i>Task Checklist: Field Crops II, AGR303(a)–3</i> <i>Lab Assessment: Plant Production, AGRLAB–PLT</i> <i>Standard</i> <i>Achieve a standard of 3 in use of basic equipment and a standard of 2 in performing other practical skills in two areas of crop production; demonstrate competencies in two areas of crop production <u>in addition to those studied in AGR203(a)</u></i> - maintaining an anecdotal record of production tasks performed in <u>two</u> areas of crop production <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG–PLT</i> <i>Standard</i> <i>Completing all sections of the log/record for each production task performed over a negotiated/contracted period of time</i>	50
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR303(a): FIELD CROPS II (continued)

Concept	Specific Learner Expectations	Notes
Industry Trends	<i>The student should:</i> - research production and consumption patterns within Alberta, Canada and the global community - assess the impact of economic, environmental and social trends on production practices within the industry; e.g., - international trade and global competition - trade liberalization - rural and urban populations - food safety and consumer confidence - consumer demands - support for research and development - environmental stewardship and sustainable development - describe ways in which government regulations, policies and guidelines may influence production - predict future production on the basis of current issues and trends.	Construct/interpret graphs that indicate production/consumption patterns over a period of time. Consider the impacts of local, national and global trends on industry practices. Individual/group research projects and presentations. Ask students to predict future production practices and give at least three reasons for their predictions.
Enterprise Selection	- explain how personal needs may influence crop selection; e.g., - food for personal consumption - economic goals - interest in aesthetics - personal motivation and aptitude - identify market factors that influence crop selection; e.g., - market demands - market size, location and access - market competition - market trends - assess financial opportunities related to crop production; e.g., - fixed and variable costs - forecast of returns - risk factors - income stabilization programs - consider land requirements, and the suitability of soil and water conditions to production operations	Potential linkages with Alberta Agriculture Green Certificate Farm Training Program: - crop production - irrigated crop production Identify input costs and potential profits for a production venture. Invite a District Agriculturist to discuss enterprise selection factors. Consider advertising and promotional technologies used to access greenhouse and nursery markets.

MODULE AGR303(a): FIELD CROPS II (continued)

Concept	Specific Learner Expectations	Notes
Enterprise Selection (continued)	<i>The student should:</i> • assess the suitability of Alberta's climate to potential crops; e.g., – growing days – frost-free days – ambient temperature – soil temperature • consider equipment needs at different stages of production; e.g., – seeding/planting – cultivation – harvesting • consider labour and transportation needs within the industry; e.g., – availability – cost.	Identify determinants of regional commodity production.
Genetics and Reproduction	• classify field plants; e.g., – according to growth habit – according to taxonomy • identify field plants, e.g., – using common names – using botanical nomenclature • research heredity principles and their application to plants that are grown; e.g., – dominant and recessive traits – selection criteria and procedures – systems of breeding • research reproduction technologies and their application to plants that are grown; e.g., – propagation techniques – genetic engineering • describe procedures used to maintain the quality of plants within the industry; e.g., – selection criteria and regulations – showing and judging – grading systems and standards – record keeping and record systems.	Plant collections, labelling and mounts. Visit an agriculture research station. Conduct breeding experiments with cucumbers, squash, pumpkins and/or gourds. Use an identification key to identify previously unknown plants.
Production Skills	• apply knowledge of plant management practices in production activities; e.g., – characteristics of plant health and disorders – remedial strategies for plant disorders – disease and pest control – plant growth management	Consider strategies for managing a crop from seed to sale.

MODULE AGR303(a): FIELD CROPS II (continued)

Concept	Specific Learner Expectations	Notes
Production Skills (continued)	<i>The student should:</i> • demonstrate techniques for maintaining sustainable use of natural resources; e.g., – management practices related to soil fertility and conservation – management practices related to water quality and the hydrologic cycle • address current concerns regarding plant management practices and sustainable production systems; e.g., – soil, water and air quality – organic and inorganic amendments – biological and chemical control measures – effluent disposal and pollution – food safety and consumer confidence • address legal considerations through plans for managing production activities; e.g., – environmental considerations – inspection, regulation and quality control.	“Pesticide Safety Course” (Olds College) Develop/implement a crop rotation plan. Individual research regarding relevant issues. Keep a daily log that details production activities. Biological control agents.

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Nursery and Greenhouse Crops I (AGR203(b))

Module Parameters: Access to a land laboratory and/or controlled growing environment will be required; instructor training in the use of pesticides (e.g., Pesticide applicator/Dispenser Certificate) is recommended

Facilities should permit students to perform practical skills in all areas of plant production as required to produce a nursery or greenhouse crop (e.g., soil preparation, propagation, transplanting, cultivation, watering and fertilizing, pest and disease control).

Students demonstrate techniques used to produce a nursery or greenhouse crop, focusing attention on enterprise selection, taxonomy and selection, production skills and industry trends.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • assess opportunities for producing a nursery or greenhouse crop	<i>Assessment of student achievement will be based on:</i> • identifying a nursery or greenhouse crop variety suited to the growth conditions of a particular locale. Identification of the crop variety to be based on information gathered regarding: – environmental factors – a suitable growing medium – space requirements for plant growth – marketing and consumption patterns <i>Assessment Tool</i> <i>Selection Criteria: Nursery and Greenhouse Crops, AGR303(b)–I</i> <i>Standard</i> <i>Address all selection criteria in identifying a nursery or greenhouse crop variety suited to local growth and market conditions</i>	10

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • apply principles of taxonomy and selection to nursery or greenhouse plants	<i>Assessment of student achievement will be based on:</i> • given access to on-site (or photographed) tree, shrub, perennial, annual and/or tropical plant species/varieties used in the nursery and greenhouse industry, identifying selected specimens according to: – common and botanical names – growth habit and taxonomy – specific applications in Alberta <i>Assessment Tools</i> <i>Identification Guide: Nursery and Greenhouse Plants, AGRIDE–NUR</i> <i>Information Sheet: Nursery and Greenhouse Plants, AGRINF–NUR</i> <i>Standard</i> <i>Identify 10 tree, shrub, perennial, annual and/or tropical plant species/varieties in addition to those identified in AGR203(b)</i> • completing a research project on applications of heredity principles and reproductive technology relevant to one nursery/greenhouse crop variety. Research to address: – desirable and undesirable plant traits – selection criteria – applications of hybridization <i>Assessment Tool</i> <i>Research Process: Heredity Principles and Reproductive Technology, AGR303(b)–2</i> <i>Standard</i> <i>Conduct research to a standard of 3 on the rating scale</i>	20

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills used in producing a nursery or greenhouse crop	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills as required to produce a nursery or greenhouse crop. Practical skills will involve: – preparing the growing medium/seed bed – propagation and transplanting – appropriate use of growing space – cultivating, watering and fertilizing the crop – controlling plant pests and diseases – packaging plant material – utilizing soil and water conservation practices <i>Assessment Tools</i> <i>Task Checklist: Nursery and Greenhouse Crops II, AGR303(b)–3</i> <i>Lab Assessment: Plant Production, AGRLAB–PLT</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in all areas of task assessment</i> - maintaining an anecdotal record of all production tasks completed <i>Assessment Tool</i> <i>Log/Record of Production Tasks, AGRLOG–PLT</i> <i>Standard</i> <i>Completing all sections of the log/record for each production task performed</i>	60
analyze the results of nursery or greenhouse crop production, and make recommendations for future production ventures	- a brief report on the results of nursery or greenhouse crop production, and recommendations regarding future production ventures. Report to address: – product quality and saleability – variables affecting production outcomes – new skills/learnings that were applied – recommendations regarding future production based on current accomplishments and challenges <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE–3</i> <i>Standard</i> <i>Complete report to a standard of 3 on the rating scale</i>	10

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Enterprise Selection	<i>The student should:</i> - explain how personal needs may influence crop selection; e.g., - food for personal consumption - economic goals - interest in aesthetics - personal motivation and aptitude - identify market factors that influence crop selection; e.g., - market demands - market size, location and access - market competition - market trends - assess financial opportunities related to crop production; e.g., - fixed and variable costs - forecast of returns - risk factors - consider land requirements and/or the suitability of soil and water conditions to production operations	Potential linkages with Alberta Agriculture Green Certificate Farm Training Program: - crop production - irrigated crop production Identify input costs and potential profits for a production venture. Invite a District Agriculturist to discuss enterprise selection factors. Consider advertising and promotional technologies used to access greenhouse and nursery markets.

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II (continued)

Concept	Specific Learner Expectations	Notes
Enterprise Selection (continued)	<i>The student should:</i> • assess the suitability of Alberta's climate to potential crops; e.g., – growing days – frost-free days – ambient temperature – soil temperature • consider equipment needs at different stages of production; e.g., – seeding/planting – cultivation – harvesting • consider labour and transportation needs within the industry; e.g., – availability – cost.	Identify determinants of regional commodity production.
Taxonomy and Genetics	• classify nursery or greenhouse plants; e.g., – according to growth habit – according to taxonomy • identify nursery or greenhouse plants, e.g., – using common names – using botanical nomenclature • research heredity principles and their application to plants that are grown; e.g., – dominant and recessive traits – selection criteria and procedures – systems of breeding • research reproduction technologies and their application to plants that are grown; e.g., – propagation techniques – hybridization • describe procedures used to maintain the quality of plants within the industry; e.g., – selection criteria – applications of hybridization – showing and judging	Plant collections, labelling and mounts. Breeding experiments with cucumbers, squash, pumpkins and/or gourds. Use an identification key to identify previously unknown plants.
Production Skills	• apply knowledge of plant management practices in production activities; e.g., – characteristics of plant health and disorders – remedial strategies for plant disorders – disease and pest control	Consider strategies for managing a crop from seed to sale.

MODULE AGR303(b): NURSERY AND GREENHOUSE CROPS II (continued)

Concept	Specific Learner Expectations	Notes
Production Skills (continued)	<i>The student should:</i> • use appropriate techniques to propagate nursery or greenhouse plants • apply principles of nutrition to production practices; e.g.: – essential nutrients – fertilizer formulation • demonstrate techniques for maintaining a sustainable production system; e.g.: – water and soil quality – organic and inorganic amendments – biological and chemical control measures – waste disposal	“Pesticide Safety Course” (Olds College) Individual research regarding relevant issues. Keep a daily log that details production activities. Discuss biological control agents.
Production Analysis	• analyze production venture outcomes based on: – product quality – product saleability – application of new skills/learnings • assess the impact of economic, environmental and/or social factors on production practices and outcomes • make recommendations regarding future production ventures on the basis of current accomplishments and challenges in plant production.	Consider the impacts of local, national and global trends on venture outcomes. Individual/group reports and presentations.

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Livestock, Poultry and Animal Specialties I (AGR204)

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to animal production. Workplace Safety Practices (CTR221) is a recommended prerequisite/corequisite.

Module Parameters: Access to livestock, poultry or specialty animals and appropriate animal confinement structures is required; it is recommended that off-campus placements be obtained for the development of practical skills in animal production; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Note: This module can be combined with other modules from Agriculture and/or Career Transitions to provide opportunities for students to develop technical competencies within the *Alberta Green Certificate Training Program* (Alberta Agriculture, Food and Rural Development). Opportunities may also exist for the completion of practical components of this module through projects undertaken with local youth groups (e.g., 4-H Clubs). See Section H (Linkages/Transitions) of this Guide for further information.

Students demonstrate techniques used to manage production of livestock, poultry or other animal commodities, focusing attention on industry trends and opportunities, genetics and reproduction, pest and disease control, and environmental management. Potential areas of specialization include the primary production of beef, dairy, poultry, swine, sheep, game, exotics, bees and/or the study of aquaculture.

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II (continued)

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> research industry trends in beef, dairy, sheep, swine, poultry or specialty animal production	<i>Assessment of student achievement will be based on:</i> - completing a research project on trends in the animal production industry. Research to address: - animal production and consumption patterns within Alberta, Canada and the global community - factors that determine the viability of a specific production enterprise <i>Assessment Tool</i> <i>Research Process: Trends in Animal Production, AGR304-1</i> <i>Standard</i> <i>Conduct research to a standard of 3 on the rating scale.</i>	20
relate principles of genetics and reproduction to the production of beef, dairy, sheep, swine, poultry or specialty animals	- identify major components of a breeding strategy used for a particular beef, dairy, sheep, swine, poultry or specialty animal. Components to include: - dominant and recessive traits - selection criteria and procedures - inbreeding, linebreeding and crossbreeding - standards of animal performance - the reproductive process and related technology - systems for maintaining/improving animal quality and productivity <i>Assessment Tool</i> <i>Assessment Criteria: Components of an Animal Breeding Strategy, AGR304-2</i> <i>Standard</i> <i>Identify and explain all components of the strategy to a standard of 3 on the rating scale</i>	20

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills in raising, growing and finishing a beef, dairy, sheep, swine, poultry or specialty animal	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills within all of the following areas of animal production: – feeding – housing – handling and restraint – health and welfare – care for young <i>Assessment Tool</i> <i>Task Checklist: Livestock, Poultry and Animal Specialties II, AGR304–3</i> <i>Lab Assessment: Animal Care, AGRLAB–ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in all areas of task and lab assessment</i> - maintaining an anecdotal record of all production tasks performed <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG–ANM</i> <i>Standard</i> <i>Completing all sections of the log/record for animal care tasks performed over a negotiated/contracted period of time.</i>	60
demonstrate basic competencies.	observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II (continued)

Concept	Specific Learner Expectations	Notes
Industry Trends	<i>The student should:</i> - research production and consumption patterns within Alberta, Canada and the global community - explain the impact of economic, environmental and social trends on production practices within the industry; e.g., - international trade and global competition - trade liberalization - rural and urban populations - food safety and consumer confidence - consumer preferences - support for research and development - environmental stewardship and sustainable development - identify market factors that influence enterprise selection; e.g., - market demands and trends - market size, location and access - market competition - assess financial opportunities related to animal production; e.g., - fixed and variable costs - forecast of returns - risk factors - income stabilization programs - describe ways in which government regulations, policies and guidelines may influence production - consider land requirements, and the suitability of soil, water and climatic conditions to production operations - consider other needs relative to production activities; e.g.: - structures and equipment - labour - transportation - predict future production on the basis of current issues and trends.	Attend local farm fairs and exhibitions. Construct/interpret graphs that indicate production/consumption patterns over a period of time. Consider the impacts of local, national and global trends on industry practices. Individual/group research projects and presentations Ask students to make predictions regarding future production practices and give at least three reasons for their predictions. Identify input costs and potential profits for a production venture. Invite a District Agriculturist to discuss enterprise selection factors. Potential linkages with Alberta Agriculture Green Certificate Farm Training Program: - beef - dairy - sheep - swine. Identify determinants of regional commodity production.

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II (continued)

Concept	Specific Learner Expectations	Notes
Genetics and Reproduction	<i>The student should:</i> - research heredity principles and their application to animals that are raised; e.g., - dominant and recessive traits - selection criteria and procedures - systems of breeding - apply knowledge of specific reproduction processes; e.g., - estrous cycle - gestation period - natural service/artificial insemination - normal birth process - age criteria for breeding - research reproduction technologies and their application to animals that are raised; e.g., - embryo transfer - gender selection - describe procedures used to manage the quality of animals within the industry; e.g., - selection criteria and regulations - pedigrees and performance information - showing/judging systems and standards - registry and record systems.	Identify desirable traits of specific animals and related heredity principles. Invite a local veterinarian to explain selection and breeding systems. Discuss the importance of breeding records. Examine registration and transfer forms. Organize a judging competition on a specific animal breed.
Production Skills	- apply knowledge of animal management practices in production activities; e.g., - feeding - housing - handling and restraint - health and welfare - care for young - describe approved methods of marking or tagging animals for identification	Consider strategies for managing livestock from birth to market. Consider growth and development patterns in relation to the age of an animal. Food sources and additives. Animal stress in relation to animal confinement.

MODULE AGR304: LIVESTOCK, POULTRY AND ANIMAL SPECIALTIES II (continued)

Concept	Specific Learner Expectations	Notes
Production Skills (continued)	<i>The student should:</i> • identify and apply appropriate strategies for maintaining sustainable use of natural resources; e.g., – management practices related to soil fertility and conservation – management practices related to water quality and the hydrologic cycle • identify current concerns regarding animal management and sustainable production systems; e.g., – animal rights – biotechnology – pollution – food safety • identify legal matters that need to be addressed through plans for production activities; e.g., – environmental health and safety – personal health and safety.	Symptoms of common diseases. Individual research regarding relevant issues. Legal considerations related to animal housing. Keep a daily log that details production activities.

MODULE AGR305: AGRIFOODS II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Agrifoods I (AGR205)

Module Parameters: Access to an agrifoods industry is recommended

Students demonstrate knowledge of techniques used to manage the development of an agrifood product or related service, focusing attention on government regulation and control, economic principles, product quality and safety, environmental impact and industry trends. Potential areas of investigation include dairy, beef, pork, poultry, cereals, oil seeds, sugar beets, wine, fruits/vegetables and honey. It is recommended that this module provide further investigation of the agrifood industry examined in Agrifoods I (AGR205).

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • identify government legislation and policies that regulate practices within an agrifood industry	<i>Assessment of student achievement will be based on:</i> • given a specific agrifood industry, identifying and describing: – the roles of federal, provincial and local government agencies responsible for product quality, worker safety and environmental impact within the industry – examples of government policy and/or legislation relevant to the industry that regulate • inspection of raw materials • product grading, packaging and labelling • sanitation standards • worker safety • environmental impact <i>Assessment Tool</i> <i>Knowledge/Application Assessment: Government Policy and Legislation, AGR305–1</i> <i>Standard</i> <i>Respond to a standard of 3 on the rating scale</i>	30

MODULE AGR305: AGRIFOODS II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe techniques used to manage industry practices, including the application of economic principles, product quality and safety, and environmental impact	<i>Assessment of student achievement will be based on:</i> preparing and presenting an oral, written and/or multi-media report describing specific management practices adopted by an agrifood industry to comply with government policy and regulation <i>Assessment Tool</i> <i>Presentations/Reports: Management Practices in Agrifoods, AGR305-2</i> <i>Standard</i> <i>Prepare and present the report to a standard of 3 on the rating scale</i>	30
research industry trends and opportunities for developing new agrifood products	- completing a research project on trends and opportunities within an agrifood industry. Research to address: - production and consumption patterns within Alberta, Canada and the global community - factors that determine the viability of a specific agrifood industry - opportunities for product research and development within the industry <i>Assessment Tool</i> <i>Research Process: Industry Trends in Agrifoods, AGR305-3</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i>	40
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR305: AGRIFOODS II (continued)

Concept	Specific Learner Expectations	Notes
Government Regulations	<i>The student should:</i> - explain the role of government legislation in maintaining product quality and safety within an agrifood industry; e.g., - inspection of raw materials - product grading - packaging and labelling - sanitation standards - safety regulations - research the mandates of specific government agencies in maintaining product quality and safety; e.g., - Agriculture Canada - Alberta Agriculture, Food and Rural Development - Consumer and Corporate Affairs - Health and Welfare Canada - research potential applications of the International Standards Organization (ISO) in regulating industry practices - research the mandates of specific government agencies regarding industry use of land, water and air; e.g., - Alberta Environmental Protection - Environment Canada.	Discuss legal definitions and standards for the processed product. Investigate worker safety concerns and related legislation
Management Functions	- apply knowledge of basic economic principles to management decisions within the industry; e.g., - supply and demand - law of diminishing returns - comparative advantage - establish criteria and techniques for assuring the quality of a commodity or value-added product through processing, transportation and storage; e.g., - parameters of quality - inspection and grading - quality control systems	Quality control on incoming product/ materials. Hazard Analysis at Critical Control Points (HACCP). Grading and labelling requirements. Suggested video: <i>On the Line</i> (deals with quality control in cheese production).

MODULE AGR305: AGRIFOODS II (continued)

Concept	Specific Learner Expectations	Notes
Management Functions (continued)	<i>The student should:</i> - establish criteria and techniques for managing environmental impact; e.g.: - methods of effluent disposal - water treatment after use - soil conservation practices - use of biodegradable materials - explain how relevant supply systems may influence industry management; e.g., - supply of raw materials - production volumes - access to market - research current issues regarding food quality and sustainable processing systems; e.g., - food additives, preservatives and irradiation - use of organic and inorganic materials - effluent disposal and pollution.	Research impacts of: - milk board system - pork marketing board - egg/poultry marketing boards - Canadian Wheat Board - Honey Producers Cooperative. Individual research regarding relevant issues.
Industry Trends	- research production and consumption patterns within Alberta, Canada and the global community - assess the impact of economic, environmental and social trends on practices within the industry; e.g., - international trade and global competition - trade liberalization - rural and urban populations - food safety and consumer confidence - consumer preferences - support for research and development - environmental stewardship and sustainable development - describe opportunities for product research and development within the industry; e.g., - altering existing products - developing new products - developing new markets - predict future production on the basis of current trends and issues.	Construct/interpret graphs that indicate production/consumption patterns over a period of time. Consider the impacts of local, national and global trends on industry practices. Individual/group research projects and presentations. Ask students to predict future production techniques and products, giving at least three reasons for their predictions.

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II

Level: Advanced

Theme: Technology and Applications

Prerequisites: Landscape and Turf Management I (AGR206)

Module Parameters: Access to residential, recreational, industrial/institutional and/or roadside landscapes will be required; instructor training in first aid and the use of pesticides (e.g., Standard First Aid, Pesticide Applicator/Dispenser Certificate) is recommended

Students demonstrate techniques used to provide landscape and turf management services, focusing attention on plant taxonomy, equipment maintenance, effective landscape practices, cost analysis and pricing. Potential areas of specialization include home landscapes, golf courses, recreational fields and parks, institutional/industrial grounds and roadside landscapes.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • identify plants suitable for use in Alberta landscapes	<i>Assessment of student achievement will be based on:</i> • given access to on-site (or photographed) tree, shrub, ground cover, flower and turfgrass species/varieties used in Alberta landscapes, identifying selected specimens according to: – common and botanical names – general characteristics/growth habits – functional use in Alberta landscapes <i>Assessment Tool</i> <i>Identification Guide: Landscape Plants, AGRIDE-LDS</i> <i>Information Sheet: Landscape Plants, AGRINF-LDS</i> <i>Standard</i> <i>Identify 15 landscape plants (including tree, shrub, ground cover, flower and turfgrass specimens) in addition to those identified in AGR206</i>	20

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> perform routine maintenance and safety checks on equipment used in landscape practices	<i>Assessment of student achievement will be based on:</i> - given access to on-site (or photographed) weed species found in Alberta landscapes and turfgrasses, identifying selected specimens according to: - common name - growth habit - management technique <i>Assessment Tool</i> <i>Identification Guide: Landscape/Turfgrass Weeds, AGRIDE-WED</i> <i>Information Sheet: Landscape/Turfgrass Weeds, AGRINF-WED</i> <i>Standard</i> <i>Identify 5 common weeds (found in Alberta landscapes and/or turfgrasses) in addition to those identified in AGR206</i> - performing routine maintenance tasks on hand and power landscape/turfgrass equipment, including when applicable: - cleaning/sharpening of hand tools and mower blades - lubrication of hand and power tools - checking of oil, filters, battery, spark plugs and radiator on small engines - cleaning of air filters on small engines - checking tires and tire pressure - preparation of equipment for off-season storage <i>Assessment Tool</i> <i>Task Checklist: Landscape and Turf Management II, AGR306-1</i> <i>Lab Assessment: Landscape and Turf Management, AGRLAB-LDS</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 on <u>three</u> pieces of equipment used in landscape/turfgrass maintenance, <u>one</u> of which is power driven</i>	20

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills used to install and maintain landscape plants and turfgrasses	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills used to provide landscape/turfgrass installation and maintenance services within <u>four</u> of the following areas: - planting and transplanting - preparing turfgrasses in the spring season - corrective pruning trees and heading/thinning back - fertilizer calculation and application to landscaped/turfed areas - winterizing of trees, shrubs, perennials and turfgrasses <i>Assessment Tool</i> <i>Task Checklist: Landscape and Turf Management II, AGR306-1</i> <i>Lab Assessment: Landscape and Turf Management, AGRLAB-LDS</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task assessment</i> - maintaining an anecdotal record of all landscape/turfgrass services performed <i>Assessment Tool</i> <i>Log/Record of Landscape/Turfgrass Services, AGRLOG-LDS</i> <i>Standard</i> <i>Completing all sections of the log/record for each service performed</i>	50
explain techniques used to cost landscape and turfgrass services	preparing a simple cost analysis for <u>one</u> landscape/turfgrass service <i>Assessment Tool</i> <i>Landscaping Principles and Practices (Unit 25: Pricing Landscape Maintenance), LRDC</i> <i>Standard</i> <i>Accurately complete a cost analysis for one service performed</i>	10

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Plant Classification and Identification	<i>The student should:</i> - describe methods of classifying landscape plants; e.g., - common and botanical names - general characteristics/growth habits - functional use - describe methods of identifying landscape plants; e.g., - using common names - using botanical nomenclature - explain the use of taxonomy keys in plant identification - identify and select appropriate trees, shrubs and ground covers for given applications in Alberta landscapes; e.g., - herbaceous and woody - evergreen and deciduous - identify and select appropriate flowers for given applications in Alberta landscapes; e.g., - annual, biennial and perennial - bulbs, tubers and rhizomes - identify and select appropriate turfgrasses for given applications in Alberta landscapes; e.g., - rhizome producing, stolon producing and bunch type - fine, medium and course leaf texture - distinguish between single species turf plantings and grasses that are mixtures or blends.	Use an identification key to identify previously unknown plants. Identify 15 or more landscape plants on site. Collect/mount a weed display. Identify specialty plants, including bulbs, corms, tubers and fleshy roots. Choose and plant bare root, ball and burlap, and container grown stock. Relate anatomy of turfgrass to appropriate management practices.

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II (continued)

Concept	Specific Learner Expectations	Notes
Equipment Maintenance	<i>The student should:</i> - perform daily maintenance on hand and power equipment used in landscape practices; e.g., - clean/sharpen hand tools and mower blades - lubricate hand and power tools - check oil, oil filter, battery and radiator on small engines - clean air filters on small engines - check tires and tire pressure - perform safety checks on equipment and report malfunctions - diagnose and trouble shoot equipment failure - maintain appropriate records regarding the use of power equipment; e.g., - hours of operation - periodic servicing - prepare equipment for off-season storage; e.g., - cleaning - draining - oil change - repair.	CAUTION Review safety knowledge and skills from AGR206 PRIOR to practical activities. Potential linkages with the "Landscape Gardener Apprentice-ship Training Program".
Installation/ Maintenance Tasks	- demonstrate proper planting and/or transplanting techniques for landscape plants; e.g., - handling of plant materials - preparing the growing media and seed bed - installing plants and turf - staking and guying the plants - explain proper techniques for preparing turfgrasses in the spring season; e.g., - cleanup - dethatching - first cutting - patching the lawn - aeration and top dressing - fertilizing	Perform general landscape and turf maintenance procedures. Keep a daily log that details maintenance activities. Demonstrate proper use of core aerator and power rake. Perform basic fertilizer calculations for turfed areas.

MODULE AGR306: LANDSCAPE AND TURF MANAGEMENT II (continued)

Concept	Specific Learner Expectations	Notes
Installation/ Maintenance Tasks (continued)	<i>The student should:</i> • explain the reasons and appropriate practices for pruning trees, shrubs and other landscape plants; e.g., – corrective – heading back – thinning – jump cuts • explain types of winter damage to landscape plants and ways to protect against winter injury; e.g., – windburn and sunscald – temperature extremes – ground heaving – damage due to ice, snow and salt – snowplow and vehicle damage.	Demonstrate corrective pruning on trees and shrubs: • thinning, heading back, jump cuts • hedge shearing • pruning of conifers. Explain winterizing techniques for trees, shrubs and turf. Potential linkages with "Pesticide Applicator/Dispenser Certificate Courses". Contact: • Lakeland College • Olds College.
Cost Analysis	• identify factors that determine the cost of a landscape/turfgrass service; e.g., – material costs – labour costs – equipment usage costs – overhead costs • prepare simple cost analyses for basic landscape/turfgrass services • identify regulations and policies that influence landscape service practices; e.g., – land planning and zoning – use of equipment and chemicals – environmental constraints.	Consider daily work ethic: • attendance • punctuality • use of time • group skills/attitudes • respect for property • clean-up.

MODULE AGR307: PETS AND EQUINE II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Pets and Equine I (AGR207)

Note: Because of the practical nature of this module, students must have a general knowledge of accepted practices and potential hazards when performing tasks related to animal care.

Module Parameters: Access to a domestic animal and appropriate animal confinement structure is required; it is recommended that off-campus placements be obtained for the development of practical skills in animal care; consultation with workplace supervisors will be necessary to ensure that student learning meets or exceeds the learner expectations specified in this module.

Students demonstrate techniques used to operate an animal boarding or training facility, focusing attention on the care and use of physical facilities, husbandry and training skills, health and reproductive technologies, and basic record keeping.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills and approved procedures for the handling and health care of a horse (or other domestic animal)	<i>Assessment of student achievement will be based on:</i> - demonstrating practical skills within <u>all</u> of the following areas of animal care: – feeding – housing and bedding – handling and restraint – health and welfare – care for young <i>Assessment Tool</i> <i>Task Checklist: Pets and Equine II, AGR307–I</i> <i>Lab Assessment: Animal Care, AGRLAB–ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in all areas of task and lab assessment</i> - maintaining an anecdotal record of animal care tasks performed <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG–ANM</i> <i>Standard</i> <i>Complete all sections of the log/record for animal care tasks performed over a negotiated/contracted period of time</i>	40

MODULE AGR307: PETS AND EQUINE II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate practical skills and approved procedures for the training and use of a horse (or other domestic animal) in work or recreation	<i>Assessment of student achievement will be based on:</i> - practical practical skills within <u>three</u> of the following areas of animal husbandry and training: - approaching and petting the animal - restraining the animal - walking/leading the animal - controlling/disciplining the animal - exercising the animal - grooming the animal <i>Assessment Tool</i> <i>Task Checklist: Pets and Equine II, AGR307-1</i> <i>Lab Assessment: Animal Care, AGRLAB-ANM</i> <i>Standard</i> <i>Achieve a minimum performance rating of 2 in applicable areas of task and lab assessment</i> - maintaining an anecdotal record of animal husbandry and training tasks performed <i>Assessment Tool</i> <i>Log/Record of Animal Care, AGRLOG-ANM</i> <i>Standard</i> <i>Complete all sections of the log/record for animal training tasks performed over a negotiated/contracted period of time</i>	40
research techniques used in managing a training facility or breeding farm	- completing a research project on techniques used in managing a training facility or breeding farm for horses (or an other domestic animal). Research to address: - applications of health and reproductive technologies - environmental constraints and health/safety regulations - procedures used to maintain quality of the animal breed - systems used to maintain records of animal ancestry and history <i>Assessment Tool</i> <i>Research Process: Equine Management, AGR307-2</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i>	20

MODULE AGR307: PETS AND EQUINE II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Animal Handling and Health Care	<i>The student should:</i> - describe the use of kennels, cages, stables and/or other confinement structures used in caring for a domestic animal; e.g., - fences and shelters - totally confined rearing structures - describe facilities and equipment required for water and feed - consider criteria relevant to the selection and/or design of structures and equipment; e.g., - function, operation and maintenance - safety and efficiency - ethical, legal and environmental factors - economics and cost - describe appropriate bedding and waste management systems - describe methods of cleaning and disinfecting kennels, cages, stables and other confinement structures - identify policy, legislation and safe practices relevant to the use of confinement structures and equipment.	Picture collection of various types of animal shelters. Design/construct models for approved structures and equipment. Construct models of fences, gates, corrals, etc., suited to a specific animal.

MODULE AGR307: PETS AND EQUINE II (continued)

Concept	Specific Learner Expectations	Notes
Animal Husbandry and Training	<i>The student should:</i> - describe the characteristics of a healthful animal environment; e.g., - sanitation - housing - pest control - methods of restraint - identify and describe health indicators for a domestic animal; e.g., - physical signs of health - normal vital signs - normal behaviour - identify agents and sources of stress for the animal, and their affects on for health - recognize abnormal behaviour, and practise intervention strategies for a sick animal; e.g., - reduce stress - administer emergency first aid - treat/control disease and other ailments - administer medication - seek professional assistance - describe veterinary services that are available, and the protocol for accessing these services - demonstrate approved procedures for handling and training the animal; e.g., - approaching and petting the animal - restraining the animal - walking/leading the animal - controlling/disciplining the animal - exercising the animal - grooming the animal - demonstrate accepted methods of teaching the animal to perform in approved competitions and events.	Animal stress in relation to animal confinement. Symptoms of common diseases. Design and implement an exercise/training program for a chosen domestic animal.

MODULE AGR307: PETS AND EQUINE II (continued)

Concept	Specific Learner Expectations	Notes
Management Techniques	<i>The student should:</i> - research contributions of technology to animal health care practices; e.g., – nutrition – obstetrics – disease prevention and treatment – cage, kennel or stable management - explain reproductive technologies that are used in breeding domestic animals; e.g., – artificial insemination – embryo transfer – estrous manipulation – gender selection - explain specific reproductive processes characteristic of a domestic animal; e.g., – estrous cycle – gestation period – natural service/artificial insemination – normal birth process – age criteria for breeding. - address legal considerations through plans for managing a boarding or training facility; e.g., – environmental considerations – safety and health inspection/regulation - describe procedures used to maintain quality of the animal breed; e.g., – breed association standards/regulations – showing/judging systems and standards - maintain appropriate record keeping systems regarding animal ancestry and history; e.g., – pedigrees and breeding records – parturition records – performance information.	Invite a local veterinarian to discuss selection and breeding systems. Consider natural and artificial breeding practices. Address only those technologies used in relation to a specific animal. Consider growth and development patterns in relation to the age of an animal. Invite a guest speaker from an animal breeding association. Organize a judging competition on a specific animal breed. Discuss the importance of breeding records. Examine registration and transfer forms.

MODULE AGR308: FLORISTRY II

Level: Advanced

Theme: Technology and Applications

Prerequisite: Floristry I (AGR208)

Module Parameters: Access to a plant potting/flower arrangement room with refrigeration, a source of water, adequate storage facilities, and work benches/table surfaces for flower arranging; instructor training in floral design and/or relevant industry experience will be an asset

Students demonstrate knowledge of the practices involved in providing floral design and interior plantscape services, focusing attention on design elements, interior plant care, floral services and marketing practices.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> identify and explain the cultural requirements of cut flowers, foliage and interior plants	<i>Assessment of student achievement will be based on:</i> - given access to on-site (or photographed) cut flowers, foliage and interior plants used in the floral industry, identifying selected specimens by: - common and botanical names - basic characteristics and general use <i>Assessment Tool</i> <i>Identification Guide: Cut Flowers and Interior Plants, AGRIDE-FLO</i> <i>Information Sheet: Cut Flowers and Interior Plants, AGRINF-FLO</i> <i>Standard</i> <i>Identify 10 cut flowers and/or foliage specimens and 5 interior plants; species identified must be in addition to those identified in AGR208</i>	20
construct fresh, dried and/or artificial floral arrangements	completing all components of a research project on design principles (i.e., rhythm, harmony, depth, line, texture and focal point) and colour theory <i>Assessment Tool</i> <i>Research Process: Design Principles and Colour Theory, AGR308-1</i> <i>Standard</i> <i>Research must be conducted to a standard of 3 on the rating scale</i>	40

MODULE AGR308: FLORISTRY II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - demonstrate practical skills used to maintain indoor plantscapes - explain techniques used to cost products within the floral industry	<i>Assessment of student achievement will be based on:</i> - constructing six or more fresh, dried and/or artificial floral arrangements as identified in <i>Task Checklist: Floristry II</i>. Each arrangement to illustrate the application of design principles outlined in <i>Product Assessment: Floristry II</i> <i>Assessment Tool</i> <i>Development Framework: Floral Construction, AGRDEV-FLO</i> <i>Task Checklist: Floristry II, AGR308-2</i> <i>Product Assessment: Floristry II, AGR308-3</i> <i>Lab Assessment: Floral Design, AGRLAB-FLO</i> <i>Project Planning: Floral Design, AGRPLN-FLO</i> <i>Standard</i> <i>Achieve a minimum rating of 1 in product assessment and 2 in lab assessment for each arrangement</i> - performing a maintenance routine for indoor plants that includes monitoring growth media, watering, fertilizing, pest control, pruning, waste removal and plant rotation <i>Assessment Tool</i> <i>Task Checklist: Care of Indoor Plants, AGR308-4</i> <i>Standard</i> <i>All tasks must be performed to a standard of 2 on the rating scale</i> - calculating the cost and selling price of floral arrangements <i>Assessment Tool</i> <i>Pricing Worksheet: Floral Services, AGRPRI-FLO</i> <i>Standard</i> <i>Accurately complete all sections of the pricing worksheet for each of three floral arrangements constructed</i>	30 10

MODULE AGR308: FLORISTRY II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Plant and Flower Identification	<i>The student should:</i> - identify cut flowers and greenery commonly used in floral design; e.g., - greenhouse/fieldgrown cut flowers - imported cut flowers - foliage and filler - relate different growth styles of flowers to their use in floral arrangements - identify interior plants and gift plants; e.g., - tropical flowering and foliage plants - flowering bulbs - identify dried and artificial materials commonly used in floral design; e.g., - dried flowers and foliage - silk and other fabric materials - explain the advantage and disadvantages of using different types of floral materials	Subscribe to Florists' Review (monthly periodical). Visit to a local florist shop. Identify: 10 or more different cut flowers and/or foliage specimens 5 or more interior plants and/or gift plants. Species identified should be in addition to those identified in AGR208.
Design and Construction	- explain and apply basic principles of design; e.g.: - line, form, pattern and texture - colour, balance and rhythm - scale and proportion - harmony, contrast and repetition - apply the colour wheel and basic colour theory - spray tint and/or dip dye fresh and dried floral products as necessary to achieve special effects	Review safety practices PRIOR to practical activities.

MODULE AGR308: FLORISTRY II (continued)

Concept	Specific Learner Expectations	Notes
Design and Construction (continued)	<i>The student should:</i> - demonstrate advanced design techniques used in floral arrangements; e.g.: – crescent – hogarth curve – T-shape – L-shape - design and construct fresh, dried and/or artificial floral arrangements for special purposes and occasions; e.g.: – calendar events – weddings – funerals – hospitals	Apply principles of: • rhythm and harmony • depth and line • texture • focal point. Practical skills should be demonstrated to industry standards (see "Flowers Canada Accreditation Program).
Plantscape Maintenance	- identify indoor plants and gift plants, explaining the cultural requirements of each; e.g., – light intensity and duration – water and soil conditions – temperature and humidity - assess the placement of indoor plants by applying knowledge of their cultural requirements - identify and explain sources of environmental stress for indoor plants; e.g., – central heating systems – air conditioning - explain legislation and safe practices regarding the handling, mixing and application of plant pesticides	Identify on-site 5 or more different indoor plants and/or gift plants (in addition to those identified in AGR208). Perform general care of flowering plants and tropical foliage plants in home, school or office for at least three weeks. Keep a daily log of maintenance activities.

MODULE AGR308: FLORISTRY II (continued)

Concept	Specific Learner Expectations	Notes
Plantscape Maintenance (continued)	<i>The student should:</i> - plan and implement a maintenance routine for an indoor plantscape; e.g., - adjust/regulate light - monitor growth media - water and fertilize - control pests - prune and remove waste material - rotate plants - demonstrate diagnostic skills regarding common plant problems; e.g., - soil/growing medium - water and drainage - fertilizers/growth stimulants - pests, diseases and other disorders.	Suggested resources: <i>Landscaping Principles and Practices</i> <i>The Commercial Greenhouse</i> <i>The Houseplant Expert.</i> Consider daily work ethic: - attendance - punctuality - use of time - group skills/ attitudes - respect for property - clean-up.
Floral Marketing	- identify fixed and variable costs associated with floral services - explain and apply pricing formulas used in the floral industry - calculate the cost price and selling price of a floral arrangement - explain the importance of accountability for pricing practices used within the industry	Distinguish between wholesale and retail. Calculate cost and selling price for a variety of floral products and services.

MODULE AGR309: MARKETING II

Level: Advanced

Theme: Technology and Applications

Prerequisites: Marketing I (AGR209)

Module Parameters: Access to an agriculture or horticulture industry is recommended

Students explain specialized applications of marketing within closed marketing structures, focusing attention on regulatory agencies/policies that influence supply of a commodity, product or service.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe general characteristics and applications of marketing within a closed marketing structure	<i>Assessment of student achievement will be based on:</i> - completing a research project on strategies used to market an agriculture commodity within a closed marketing structure. Research to address: - social, economic and environmental factors that influence market trends - a rationale for “supply management” within the industry - specific marketing structures/agencies/policies that regulate commodity supply and exchange - influence of government policies/legislation on marketing activities - a comparison of approaches used to market the commodity in Canada with other nations - forecasts regarding future exchange and marketing of the commodity <i>Assessment Tool</i> <i>Research Process: Specialized Applications of Marketing, AGR309–I</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i>	25

MODULE AGR309: MARKETING II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> compare open and closed marketing systems with respect to the benefits and costs of each	<i>Assessment of student achievement will be based on:</i> - given a current issue regarding applications of open and/or closed marketing within an agriculture industry: - negotiating and debating the benefits/costs of a specific marketing strategy while assuming the role of producer and consumer - preparing and presenting a brief position paper on the issue that states and defends a preferred marketing alternative <i>Assessment Tool</i> <i>Negotiation and Debate: AGRNEG-3</i> <i>Presentations/Reports, AGRPRE-3</i> <i>Standard</i> <i>Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale</i>	25
explain factors that affect decisions to produce and market an agriculture commodity within a closed marketing structure	- develop plans to produce and market an agriculture commodity within a closed system. Venture plan to include analysis of <u>six</u> or more factors that affect decisions to produce and market the commodity, such as: - supply, quality and/or pricing - current market information - transportation requirements - time constraints on perishable products - international and domestic trade rules - income support programs and subsidies <i>Assessment Tool</i> <i>Assessment Criteria: Venture Plans, AGR309-2</i> <i>Standard</i> <i>Develop venture plans to a standard of 2 on the rating scale</i>	50
demonstrate basic competencies.	observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR309: MARKETING II (continued)

Concept	Specific Learner Expectations	Notes
Past and Present Trends	<i>The student should:</i> - describe past and present trends in the regulated marketing of an agricultural commodity, product or service - examine factors that have affected marketing practices within the industry; e.g., - consumer trends - trade liberalization - globalization of markets - environmental concerns - subsidy policies - compare approaches used to market the commodity, product or service in Canada with approaches used in other nations; e.g., - United States - nations of the Pacific Rim - Europe.	
Structures and Policies	- identify economic factors that affect marketing activities within the industry; e.g., - law of supply and demand - price determination and the futures market - comparative advantage - explain the concept of supply management, and differences between non-regulated (open) and regulated (closed) marketing systems - explain the role and impact of regulatory systems and strategies used in marketing the commodity, product or service; e.g., - marketing boards and cooperatives - quota systems and monopolies - identify marketing structures used to facilitate commodity exchange; e.g., - Winnipeg Commodity Exchange - Omaha Market Exchange - Chicago Grain Exchange	Research steps in "hedging".

MODULE AGR309: MARKETING II (continued)

Concept	Specific Learner Expectations	Notes
Structures and Policies (continued)	<i>The student should:</i> • assess the impact of government policies and legislation on marketing activities within the industry; e.g., – federal, provincial and international trade agreements – transportation policies – non-trade (health and safety) standards • explain the function of income stabilization programs, and their effect on long- and short-term market trends.	Research influence of: • GATT (General Agreement on Tariffs and Trade) • NAFTA (North American Free Trade Agreement) Research influence of: • GRIP (Gross Revenue Insurance Plan) • NISA (Net Income Stabilization Account)
Marketing Decisions	• identify factors that influence decisions to market the commodity, product or service; e.g., – commodity supply, quality and pricing – financial constraints, including capital, credit and cash flow – time constraints on perishable products – transportation requirements • suggest ways in which relevant trade policies and regulations may influence marketing decisions; e.g., – international and domestic trade rules – transportation policies – income support programs and subsidies • consider strategies for gathering current market information; e.g., – publications and journals – private consultation – radio and television – data base • identify and assess viable alternatives for marketing the commodity, product or service; e.g., – marketing board – cooperative – direct sale.	Contact the Alberta Wheat Pool (Farm Information Services) regarding marketing simulation programs. Contact Alberta Agriculture (Farm Business Management Branch) regarding bulletin board systems.

MODULE AGR310: APPLICATIONS OF BIOTECHNOLOGY

Level: Advanced

Theme: Technology and Applications

Prerequisite: None

Module Parameters: Access to current resources on applications of biotechnology in agriculture is recommended

Students present the results of research on applications of biotechnology in agriculture and food production.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the history and development of biotechnology	<i>Assessment of student achievement will be based on:</i> - a teacher-prepared assessment in which the student demonstrates knowledge of: - the nature of biotechnology and basic genetic terms - basic methods used to alter plant and animal characteristics - moral and ethical issues associated with developments in biotechnology <i>Assessment Tool</i> <i>Agriscience and Technology, Section I: Biotechnology</i> <i>Standard</i> <i>Response indicating 60% mastery</i>	25
explain applications of biotechnology in agriculture and food production	- a presentation or report on the benefits and costs associated with one or more applications of biotechnology in each of the following areas: - product and market development - industry diversification - production efficiency - disease and pest control <i>Assessment Tool</i> <i>Presentations/Reports, AGRPPE-3</i> <i>Standard</i> <i>Complete the presentation or report to a standard of 3 on the rating scale</i>	25

MODULE AGR310: APPLICATIONS OF BIOTECHNOLOGY (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - research the process through which a recent biotechnology for Alberta's agriculture industry was developed - demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> - given a recent development in biotechnology, completing a research project on: - major components of scientific research and problem solving evident in the process used to develop that technology - current/potential applications of similar processes in solving other problems that impact agriculture in Alberta <i>Assessment Tool</i> <i>Research Process: Developments in Biotechnology, AGR310-1</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i> - observations of individual effort and interpersonal interaction during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	50 Integrated throughout

Concept	Specific Learner Expectations	Notes
Nature and History	<i>The student should:</i> - explain how biotechnology involves the altering of cells and organisms to produce goods and services - provide a historical perspective on methods by which the characteristics of plants and animals have been altered; e.g., - natural selection - selective breeding - genetic engineering	Discuss strengths/weaknesses of different plant or animal characteristics.

MODULE AGR310: APPLICATIONS OF BIOTECHNOLOGY (continued)

Concept	Specific Learner Expectations	Notes
Nature and History (continued)	<i>The student should:</i> - describe basic vocabulary and techniques used in genetic engineering; e.g., - chromosome - gene - gene mapping - gene splicing - cloning - outline present and emerging applications of biotechnology in major sectors of Alberta's economy; e.g., - agriculture - health care - mining - forestry - energy - tourism.	Selecting and breeding desirable characteristics.
Applications	- describe specific applications of biotechnology in agriculture and food production; e.g., - product and market development - industry diversification - production efficiency - disease and pest control - analyze environmental, economic and ethical issues related to developments in biotechnology; e.g., - use of natural resources - control and patenting of life forms - impact of genetically altered organisms - food quality and safety - world food supply - predict possible effects of new biotechnologies on producers, processors, consumers and governments - explain the role of legislation in regulating developments in biotechnology.	Suggested video: <i>Guess What's Coming to Dinner</i>. Artificial insemination. Embryo transplants. Use of hormones and growth supplements. Risks and benefits.

MODULE AGR310: APPLICATIONS OF BIOTECHNOLOGY (continued)

Concept	Specific Learner Expectations	Notes
Research Project	<i>The student should:</i> • identify a specific problem in agriculture and food production recently addressed through biotechnology; e.g., – production costs – product quality – market supply – environmental impact • identify key stakeholder groups affected by the problem • describe funding and partnerships that were established to address the problem • explain applications of biotechnology in dealing with the problem; e.g., – principles of genetic engineering – scientific design – experimental outcomes • assess the social, economic and environmental consequences of experimental outcomes • make recommendations regarding the use of biotechnology and practical solutions to the problem; e.g., – management actions – further research.	Keep research projects relevant to personal needs and living experiences.

MODULE AGR311: WATER MANAGEMENT

Level: Advanced

Theme: Management and Conservation

Recommended

Prerequisite/

Corequisite: Resource Management and Conservation (AGR111)

Module Parameters: Access to government agencies responsible for agriculture management and resource conservation is recommended

Students explain principles of water management, and establish appropriate water management practices for an agriculture or horticulture enterprise.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the hydrologic cycle	<i>Assessment of student achievement will be based on:</i> - a presentation or report that provides: - an illustration of the hydrologic cycle depicting precipitation, evaporation, transpiration, condensation and groundwater flow - an explanation of changes that occur to water as it is recycled in the natural environment <i>Assessment Tool</i> <i>Presentations/Reports, AGRPRE-3</i> <i>Standard</i> <i>Complete the presentation or report to a standard of 3 on the rating scale</i>	10
identify water sources important to agriculture in Alberta	given an outline map of Alberta, locating and naming all major sources of surface water in the province <i>Assessment Tool</i> <i>Task Checklist for Mapping, AGRMAP</i> <i>Standard</i> <i>Complete mapping to a standard of 3 on the rating scale</i>	10

MODULE AGR311: WATER MANAGEMENT (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> - explain how agriculture affects the water resource at local and global levels - identify water quality factors and techniques used to manage water for the benefit of agriculture and the environment	<i>Assessment of student achievement will be based on:</i> - constructing diagrams/models of two or more on-site systems used to collect and distribute water for agriculture in Alberta <i>Assessment Tool</i> <i>Assessment Criteria: Diagrams and Technical Drawings, AGRDRA</i> <i>Standard</i> <i>Complete diagrams/models to a standard of 3 on the rating scale</i> - given an issue that involves the impact of one or more agriculture practices on the water resource: - negotiating and debating the issue while assuming the role of one or more interest groups - preparing and presenting a position paper on the issue that outlines a responsible course of action <i>Assessment Tool</i> <i>Negotiation and Debate, AGRNEG-3</i> <i>Position Paper: Managing the Water Resource, AGR311-1</i> <i>Standard</i> <i>Address criteria in negotiation/debate and the position paper to a standard of 3 on the rating scale</i> - conducting laboratory investigations that permit the student to: - identify physical, chemical and biological characteristics of water important in plant and animal production - interpret water test results for a specific use in agriculture - prescribe water treatments based on the results of water tests <i>Assessment Tool</i> <i>Lab Investigations: Water Quality, AGR311-2</i> <i>Standard</i> <i>Complete laboratory investigations to a standard of 3 on the rating scale</i>	30 50

MODULE AGR311: WATER MANAGEMENT (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i>	<i>Assessment of student achievement will be based on:</i> - conducting field-based investigations of three or more technologies used in agriculture to: - manage limited and/or excess water supplies (e.g., irrigation, storage, diversion, drainage) - maintain water quality (e.g., cropping rotations, conservation tillage, management systems for animal waste, pesticide management) <i>Assessment Tool</i> <i>Observation Checklist for Field-Based Investigations, AGROBS</i> <i>Standard</i> <i>Complete all sections of the checklist as they apply to objectives of the field investigation</i> - developing a water management plan for an agriculture venture. Management plan to address: - available surface and groundwater supplies - water requirements according to estimates of consumption - water treatments to ensure its suitability for use - management practices to compensate for water deficiencies and/or environmental concerns <i>Assessment Tool</i> <i>Assessment Criteria: A Water Management Plan, AGR311-3</i> <i>Standard</i> <i>Complete the water management plan to a standard of 3 on the rating scale</i>	
demonstrate basic competencies.	observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR311: WATER MANAGEMENT (continued)

Concept	Specific Learner Expectations	Notes
Hydrologic Cycle	<i>The student should:</i> - define and illustrate the water cycle - describe the roles of evaporation, precipitation, run-off and infiltration in the water cycle - explain physical, chemical and biological changes in water as it is cycled in the natural environment.	Explain the role of the hydrologic cycle in replenishing water supplies.
Water Sources and Quality	- describe the main sources of water for agriculture; e.g., - ground water - surface water - precipitation - describe on-site systems used to collect and distribute water for agriculture - describe and give examples of physical, chemical and biological characteristics of water important to plants and animals; e.g., - turbidity, temperature, odour and taste - dissolved oxygen, pH, mineral content - bacteria, viruses, algae and plankton - perform tests to determine the characteristics of water and its suitability for an agricultural use.	Investigate: - ground water reserves - major surface water resources - precipitation patterns. Well-witching demonstrations. Interpret water test results for specific uses in agriculture. Water hardness test. Analyze local water supplies through the local health unit. Determine water quality requirements for a plant/animal production enterprise.
Agriculture Impacts	- explain how agricultural practices may affect the water resource at local and global levels; e.g., - land clearing - overgrazing - soil cultivation - use of chemical fertilizers and pesticides - irrigation and draining practices - animal wastes - describe the effects of erosion and siltation on water quality - relate specific agricultural practices to physical, chemical and biological changes that occur in the water resource - debate a global issue regarding the impact of agriculture on water supply and/or water quality.	Consider impacts of limited/excess water supplies on: - humans - livestock - crops - wildlife - ecosystems. Investigate on-site collection systems. Explain “static level” and “drawdown” in relation to a farm well.

MODULE AGR311: WATER MANAGEMENT (continued)

Concept	Specific Learner Expectations	Notes
Water Management Practices	<i>The student should:</i> - describe and assess techniques used to manage limited and excess water supplies in agriculture; e.g., – irrigation, storage, recycling – diversion, drainage, flood control - identify and apply treatments for enhancing water quality both before and after use in agriculture - conduct research on forms of water ownership and legal aspects of water control; e.g., – public, private and deeded ownership – government controls on pollution - describe and assess agriculture practices aimed at maintaining water quality; e.g., – cropping rotations – management of animal wastes – conservation tillage – optimal fertilizer and pesticide management - explain how the maintenance of wetlands contributes to water management.	Cropping rotations. Animal waste practices. Wetlands Management. Assess the potential of existing water supplies to meet projected water requirements for a specific agriculture venture. Explain how agriculture can assist in treating municipal wastes. Examples: • water rights • control of effluent disposal and pollution • diversion of natural waterways. Compare agriculture practices in two locales having significant variance in their water resources. See print and video materials in “Wetland Environments” kit (Ducks Unlimited). Kit can be obtained through FEESA.

MODULE AGR312: SOILS MANAGEMENT II

Level: Advanced

Theme: Management and Conservation

Prerequisite: Soils Management I (AGR212)

Module Parameters: Access to a science laboratory and land laboratory is recommended

Note: Specific learner expectations in Soils Management I and II are consistent with Soils Investigations (SOIL 100–35) at Olds College. Teachers should contact the Registrar's Office, Olds College, regarding transfer of credit for competencies developed in AGR212 and AGR312.

Students demonstrate knowledge of appropriate soil testing and amending techniques, and interpret soil survey maps and reports.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> analyze the nutrient requirements of plants and select appropriate fertilization techniques	<i>Assessment of student achievement will be based on:</i> - a theory test in which the student demonstrates knowledge of the nutrient requirements of plants and soil fertility <i>Assessment Tool</i> <i>Sample Test Items: Nutrient Requirements of Plants, Soils Investigations Facilitator's Manual (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i> - given soil characteristics and plant nutrient requirements, calculating an appropriate blend of fertilizer <i>Assessment Tools</i> <i>Soils Investigations II Assignment Book (LRDC)</i> <i>Standard</i> <i>Complete all related exercises in the assignment book</i>	40

MODULE AGR312: SOILS MANAGEMENT II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate appropriate soil sampling techniques and interpret soil test reports	<i>Assessment of student achievement will be based on:</i> - a theory test in which the student demonstrates knowledge of soil sampling and testing <i>Assessment Tool</i> <i>Sample Test Items: Soil Sampling and Testing, Soils Investigations Facilitator's Manual, (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i> - given a soil test report, interpret and elaborate on soil and cropping information and fertilizer recommendations <i>Assessment Tools</i> <i>Presentation/Reports, AGRPRE-3</i> <i>Soils Investigations II Assignment Book (LRDC)</i> <i>Soils Investigations Materials Kit (LRDC)</i> <i>Standard</i> <i>Interpret information on soil, cropping and fertilizers to a standard of 3 on the rating scale</i>	20
describe the legal location of a parcel of land using the Western Grid Survey System	- a theory test in which the student demonstrates knowledge of the Western Grid Survey System <i>Assessment Tool</i> <i>Sample Test Items: Western Grid Survey System, Soils Investigations Facilitator's Manual, (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i> - given the legal description of a parcel of land, locate the parcel of land on a map <i>Assessment Tool</i> <i>Soils Investigations I Assignment Book (LRDC)</i> <i>Standard</i> <i>Complete all related exercises in the assignment book</i>	10

MODULE AGR312: SOILS MANAGEMENT II (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> • read and interpret soil survey maps and reports	<i>Assessment of student achievement will be based on:</i> • a theory test in which the student demonstrates knowledge of soil survey maps and reports <i>Assessment Tool</i> <i>Sample Test Items: Soil Survey Maps and Reports, Soils Investigations Facilitator's Manual (LRDC)</i> <i>Standard</i> <i>Response indicating 75% mastery</i> • given a soil survey map and report for a given parcel of land, interpret and elaborate on the natural environment, soil classes and potential capacity of the land for agriculture <i>Assessment Tool</i> <i>Presentations/Reports, AGRPPE-3</i> <i>Soils Investigations II Assignment Book (LRDC)</i> <i>Soils Investigations Materials Kit (LRDC)</i> <i>Standard</i> <i>Interpret information regarding the natural environment and potential for agriculture to a standard of 3 on the rating scale</i>	30
• demonstrate basic competencies.	• observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

MODULE AGR312: SOILS MANAGEMENT II (continued)

Concept	Specific Learner Expectations	Notes
Soil Fertility	<i>The student should:</i> - list the names and sources of essential nutrients and macronutrients for plants - describe soil colloids and their role in storing and releasing plant nutrients - identify major fertilizer nutrients and describe their benefits to plant growth - distinguish between natural and synthetic fertilizers, and explain the advantages and disadvantages of each - define fertilizer grade and give examples of commonly used grades - assess the pros and cons of specialty fertilizer products - describe common methods of fertilizer application - calculate an appropriate amount and blend of fertilizer based upon plant nutrient requirements.	Grow plants under hydroponic conditions to observe macro nutrient deficiencies. Contact Department of Instructional Design, Olds College, for additional support materials. Invite a soils specialist from government, industry or post-secondary to discuss nutrient requirements of plants and fertilization techniques.
Soil Testing	- suggest reasons for soil testing - identify major soil nutrients and soil quality factors evaluated through a soil test - describe the steps involved in conducting a soil test; e.g., - soil sampling - laboratory analysis - interpretation of results - demonstrate accurate soil sampling techniques - describe the major elements of a soil test report; e.g., - soil and cropping information - fertilizer recommendations - soil analysis results - yield increase data - read and interpret a soil test report.	Collect soil samples in local area and obtain laboratory analysis. Interpret laboratory report and apply to production methods.

MODULE AGR312: SOILS MANAGEMENT II (continued)

Concept	Specific Learner Expectations	Notes
Western Grid Survey System	<i>The student should:</i> - identify and describe components of the Western Grid Survey System; e.g., - lines of latitude and longitude - townships and ranges - sections and legal subdivisions - roads - determine the area of a parcel of land based upon information provided through its legal land description - describe and provide reasons for correction lines, partial sections and acreage anomalies - locate a specific parcel of land on a soil map by applying knowledge of its legal land description.	Obtain survey maps of local area from government agencies. Locate known reference points on the maps.
Soil Survey Maps and Reports	- describe key components of the Canada Land Inventory (CLI) system; e.g., - soil classes and subclasses - climatic subregions - determine the agricultural capacity of a given piece of land by interpreting a CLI Soil Capability for Agriculture map - consider the strengths and limitations of information provided through CLI maps in establishing agriculture management and conservation practices - describe the nature and purpose of information conveyed through a soil survey map and report; e.g., - overview of natural environment - classification of soils - potential land use - identify and explain components of a soil survey map; e.g., - map units - map legend - map symbols - reference section - key map - read and interpret a soil survey map and report.	Read and interpret local soil survey maps and reports. Invite a District Agriculturist as a resource person.

MODULE AGR313: ENVIRONMENTAL CONSERVATION AND CONSEQUENCES

Level: Advanced

Theme: Management and Conservation

Prerequisite: None

Module Parameters: Access to government and/or community agencies responsible for agriculture management and resource conservation is recommended

Students examine the impact of a range of plant and animal production practices on the environment, and propose strategies for ensuring the sustainable use of natural resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> describe the structure and functioning of ecosystems	<i>Assessment of student achievement will be based on:</i> - a teacher-prepared assessment in which the student demonstrates knowledge of interrelationships among living and non-living ecosystem components. Assessment to address: - the relationship of soil, water and air characteristics to plant and animal health/distribution - interactions and dependencies among living organisms - natural recycling processes that involve soil, water and air <i>Assessment Tool</i> <i>Ecosystems (Teacher Resource Book)</i> <i>Standard</i> <i>Response indicating 60% mastery</i>	20

MODULE AGR313: ENVIRONMENTAL CONSERVATION AND CONSEQUENCES (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> explain potential impacts of agricultural systems on the environment	<i>Assessment of student achievement will be based on:</i> given access to information on two or more agricultural systems (e.g., field crop production, greenhouse production, feedlot production, range grazing), completing a research project on the potential impacts of each on land, water, air and wildlife <i>Assessment Tool</i> <i>Research Process: Environmental Impacts of Agriculture, AGR313-1</i> <i>Standard</i> <i>Complete all components of research to a standard of 3 on the rating scale</i>	30
propose strategies for ensuring the sustainable use of natural resources	- developing and presenting plans for a production venture that demonstrate principles of sustainable development. Venture plan to address: - background information regarding conservation, preservation and sustainable production systems - a strategy for multiple land use - a strategy for soil fertility and conservation - a strategy for water management practices - interrelationships and dependencies among domestic and non-domestic plant and animal species - legislated environmental regulation and constraints <i>Assessment Tool</i> <i>Assessment Criteria: Venture Plan for Sustainable Production, AGR313-2</i> <i>Standard</i> <i>Complete the venture plan to a standard of 3 on the rating scale</i>	50

MODULE AGR313: ENVIRONMENTAL CONSERVATION AND CONSEQUENCES (continued)

Module Learner Expectations	Assessment Criteria and Conditions (Draft)	Suggested Emphasis
<i>The student will:</i> demonstrate basic competencies.	<i>Assessment of student achievement will be based on:</i> observations of individual effort and interpersonal exploration during the learning process <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Dynamic Ecosystems	<i>The student should:</i> - identify major living and non-living ecosystem components; e.g., - soil, water and air - domestic/non-domestic plant and animal species - climate and temperature - describe interrelationships among ecosystem components; e.g., - relationship of soil, water and air characteristics to plant and animal distribution/health - interactions and dependencies among living organisms - explain natural recycling processes that involve soil, water and air; e.g., - exchange of gases - water cycle - nutrient cycles.	Suggested resource: “Wetland Environments” (print and video materials available from FEESA).

MODULE AGR313: ENVIRONMENTAL CONSERVATION AND CONSEQUENCES (continued)

Concept	Specific Learner Expectations	Notes
Environmental Impacts	<i>The student should:</i> • explain the impact of deforestation, land clearing and cultivation practices on ecosystems • describe ways in which water diversion and irrigation projects have changed the environment • describe potential impacts of pesticides, fertilizers and animal wastes on soil, water and air characteristics • explain potential impacts of selective breeding and genetic engineering on biodiversity of plant and animal populations • identify environmental pollutants resulting from large-scale and specialized production practices.	
Environmental Management	• define conservation, preservation and sustainable production • suggest a rationale for the retention of land as a natural habitat • explain applications of multiple land use in an agriculture enterprise • explain the benefits and costs of wetlands in an agriculture production system • describe soil management practices relevant to an agriculture production system; e.g., – soil fertility – soil conservation • describe water management practices relevant to an agriculture production system; e.g., – water quality – hydrologic cycle • identify government policies and regulations that support sustainable production practices; e.g., – environmental constraints – inspection and regulation	Computer simulations: • “Sim City” • “Sim Earth” • “Global Effect”. Invite resource persons from public and/or private environmental agencies (e.g., Ducks Unlimited).

MODULE AGR313: ENVIRONMENTAL CONSERVATION AND CONSEQUENCES (continued)

Concept	Specific Learner Expectations	Notes
Environmental Management (continued)	<i>The student should:</i> • explain potential impacts of agricultural systems on ecosystem dynamics • assess the benefits and costs of specific management practices in maximizing sustainable production and minimizing environmental impacts within an agriculture production system • identify potential careers in environmental management; e.g.: – environmental assessment – environmental regulation.	

AGRICULTURE

SECTION G: ASSESSMENT TOOLS

(DRAFT)

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These tools will assist teachers throughout the province to more consistently assess student achievement. The purpose of expanding on the assessment standards is to:

- increase confidence among students, parents, business/industry and post-secondary that students can demonstrate the competencies specified in the modules they have completed
- encourage fairness and equity in how students' efforts are judged
- enable learners to focus effort on key learnings
- support teachers and community partners in planning and implementing CTS.

These tools are in draft form and are being validated between now and 1997 during the optional stage of CTS implementation.

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ASSESSING STUDENT ACHIEVEMENT IN CTS

The CTS assessment standards assess two basic forms of competency:

- What a student **can do**?
 - **make** a product (e.g., wood bowl, report, garment)
 - **demonstrate** a process
 - strand-related competencies (e.g., keyboarding, hair cutting, sewing techniques, lab procedures)
 - basic competencies (e.g., resource use, safety procedures, teamwork).
- What a student **knows**?
 - knowledge base needed to demonstrate a competency (link theory and practice).

CTS Defines *Summative* Assessment Standards

The assessment standards and tools defined for the CTS modules, referenced in Sections D, E and F of this Guide, focus on the final (or summative) assessment of student achievement.

Assessment throughout the learning period (or formative assessment) will continue to assess how students are progressing. Teachers direct and respond to students' efforts to learn—setting and marking tasks and assignments, indicating where improvement is needed, sending out interim reports, congratulating excellence, etc.

Teachers will decide which instructional and assessment strategies to apply during the formative learning period. As formative and summative assessment are closely linked, some teachers may wish to modify the tools included in this section to use during the instructional process. Teachers may also develop their own summative assessment tools as long as the standards are consistent with the minimum expectations outlined by Alberta Education.

Grading and Reporting Student Achievement

When a student can demonstrate ALL of the exit-level competencies defined for the module (Module Learner Expectations), the teacher will designate the module as “successfully completed.” The teacher will then use accepted grading practices to determine the percentage grade to be given for the module—a mark not less than 50%.

The time frame a teacher allows a student to develop the exit-level competency is a local decision. NOTE: The Senior High School Handbook specifies that students must have access to 25 hours of instruction for each credit. Students may, however, attain the required competencies in less time and may proceed to other modules.

Teachers are encouraged to consult their colleagues to ensure grading practices are as consistent as possible.

High school teachers may wish to refer to “Directions for Reporting Student Achievement in CTS” for information on how to use the CTS course codes to report credits students have earned to Alberta Education. (Copies of this document have been forwarded to superintendents and senior high school principals.)

Components of Assessment Standards in CTS

The following components are included in each module:

- **module learner expectations** (shaded left column of the module) define the exit-level competencies students are expected to achieve to complete a module. Each MLE defines and describes critical behaviours that can be measured and observed. The student must meet the standard specified for ALL MLEs within a module to be successful. (*MLEs will not change until 1997 when minor adjustments may be made to update and clarify wording.*)

- **suggested emphasis** (right column of the module) provides a guideline for the relative significance of each MLE and can be used to organize for instruction. (*In draft until early 1997, revisions to selected modules will be distributed in June 1995 and 1996 with final revisions in June 1997.*)
- **conditions and criteria** (middle column of the module) set the framework for the assessment of student competency, specifying the minimum standard for performance and including a reference to assessment tools, where appropriate. (*In draft until early 1997, revisions to selected modules will be distributed in June 1995 and 1996 with final revisions in June 1997.*)

Conditions outline the specifications under which a student's competency can be judged. For example, the conditions could specify whether the assessment should be timed or not, or if the student should be allowed to access to support resources or references.

Criteria define the behaviours that a student must demonstrate to meet the designated standard. For example, the criteria could describe the various techniques that must be demonstrated when using a tool, and/or describe the minimum components of a project the student must complete.

Standard may be defined by (1) assessment tools, which are referenced in this section (or sometimes in approved learning resources) and/or (2) "illustrative examples" of student work (to be developed and distributed in June 1997).

Assessment Tools included in this section of the Guide tend to be of two types:

- tools generic to a strand or to the entire CTS program; e.g., a standard 5-point rating scale is used in all strands. Other generic tools include assessing reports and presentations and lab safety checklists. (*Names of these tools*

include the strand code (e.g., "INF" for Information Processing) and a code for the type of tool (e.g., "TDENT" for Text-Data Entry).)

- tools specific to a module; e.g., assessment checklist for assessing a venture plan in Enterprise and Innovation or a checklist for sketching, drawing and modelling in Design Studies. (*Names of these tools include the module code; e.g., "INF101-1" indicating that it is the first module-specific tool used in Information Processing Module 101.*)
- Illustrative Examples: Selected examples of student work in print, audio, video and/or CD-ROM formats are scheduled to be available by June 1997. These examples will supplement the assessment tools and help teachers decide if a student's work is at standard, above standard, or not yet at standard.

Development and Validation Processes

The "Conditions and Criteria" and "Suggested Emphasis" columns are being validated 1994–97, with extensive input from teachers, professional associations/contacts and post-secondary institutions. The goal is to prepare well-structured assessment standards and related assessment tools that:

- establish an appropriate level of challenge and rigour
- relate directly to the type of learning described in the curriculum standard
- are easy to understand
- are efficient to implement
- can provide a consistent measure of what was expected to be measured.

ASSESSING STUDENT ACHIEVEMENT IN AGRICULTURE

Assessing student achievement in Agriculture involves gathering information about what a student knows and is able to do, and comparing this information with learning outcomes defined by the curriculum (i.e., module learner expectations, assessment conditions and criteria, illustrative examples/reference sets).

Summative assessment for each module in Agriculture will focus attention on process (e.g., how the student approaches/performs particular tasks) and product (e.g., quality characteristics of the task performed, item produced or service rendered). While there are also knowledge-based components of learning within each module, a greater emphasis has been suggested for learning that involves the transfer/application of knowledge in task- or service-oriented situations.

Assessment Strategies and Tools

A variety of assessment tools are provided for assessing student performance within each module. Each tool communicates, through a 5-point rating scale, a minimum standard for the completion of a learning task. Criteria for assessing the “basic competencies” students are expected to demonstrate throughout the learning process have been integrated with other performance criteria in each tool.

The assessment tools, when used collectively for a particular module, will assist teachers to assess successful module completion in an equitable and consistent manner. Depending on the way the classroom is organized, assessment tools may be used with individual students upon completion of specific learning tasks, or with the entire class at the end of a learning period.

Tools Generic to Agriculture

Assessment tools generic to Agriculture have been developed to assist in assessing student performance in key areas of learning across the scope and sequence. The generic tools

communicate minimum performance standards for:

- conducting research, preparing reports and making presentations
- performing practical tasks in plant/animal production, floral design and landscape maintenance
- conducting laboratory and field-based investigations
- analyzing, negotiating and debating agriculture- and environment-related issues
- proposing personal/shared actions that foster environmental citizenship
- exploring career trends and conducting searches of employment opportunities.

The generic tools, referenced as applicable throughout each module in the conditions and criteria column, are identified with a six- or nine-letter code (e.g., AGROBS, AGRLAB-PLT). Generic tools developed for use in modules at a specific level are further identified by a number (e.g., AGRPRE-1 for introductory, AGRPRE-2 for intermediate, AGRPRE-3 for advanced).

Tools Specific to Agriculture Modules

Other assessment tools have been developed to assess competencies that are unique to specific modules within the Agriculture strand. These “module-specific” tools, also referenced in the conditions and criteria column for each module, are identified by the module number followed by a tool number (e.g., AGR107-1 for the first module-specific tool in module AGR107).

In some instances, authorized learning resources have been identified as assessment tools for specific modules. These learning resources usually contain test banks and other assessment strategies considered effective in establishing minimum standards for achievement.

Where appropriate, “Illustrative Examples” or “Sample Assignments/Projects” have been provided in a further attempt to communicate realistic expectations and acceptable standards of achievement.

BASIC COMPETENCIES REFERENCE GUIDE

(This checklist is still being validated)

The following chart outlines basic competencies which students will endeavor to develop and enhance in each of the CTS strands and modules. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each module. In general, there is a progression of task complexity and student initiative as outlined in the Development Framework*. As students progress through the Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages. Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using for a reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- including in student's portfolio

Stage 1— The student:	Stage 2— The student:	Stage 3— The student:	Stage 4— The student:
Managing Learning ☐ comes to class prepared for learning ☐ follows basic instructions as directed ☐ acquires specialized knowledge, skills and attitudes ☐ identifies criteria for evaluating choices and making decisions ☐ uses a variety of learning strategies	☐ ☐ follows instructions with limited direction ☐ sets goals and establishes steps to achieve them with direction ☐ applies specialized knowledge, skills and attitudes in practical situations ☐ identifies and applies a range of effective strategies for solving problems and making decisions ☐ explores and uses a variety of learning strategies with limited direction	☐ ☐ follows detailed instructions on an independent basis ☐ sets clear goals and establish steps to achieve them ☐ transfers and applies specialized knowledge, skills and attitudes in a variety of situations ☐ uses a range of critical thinking skills to evaluate situations, solve problems and make decisions ☐ selects and uses effective learning strategies ☐ cooperates with others in the effective use of learning strategies	☐ ☐ ☐ demonstrates self-direction in learning, goal setting and goal achievement ☐ transfers and applies learning in new situations; demonstrates commitment to life-long learning ☐ thinks critically and acts logically to evaluate situations, solve problems and make decisions ☐ ☐ provides leadership in the effective use of learning strategies
Managing Resources ☐ adheres to established timelines; uses time/schedules/planners effectively ☐ uses information (material and human resources) as directed ☐ uses technology (facilities, equipment, supplies) as directed to perform a task or provide a service ☐ maintains, stores, and/or disposes of equipment and materials as directed	☐ creates and adheres to timelines with limited direction; uses time/schedules/planners effectively ☐ accesses and uses a range of relevant information (material and human resources) with limited direction ☐ uses technology (facilities, equipment, supplies) as appropriate to perform a task or provide a service with minimal assistance and supervision ☐ maintains, stores and/or disposes of equipment and materials with limited assistance	☐ creates and adheres to detailed timelines on an independent basis; prioritize task; use time/schedules/planners effectively ☐ accesses a range of information (material and human resources) and recognizes when additional resources are required ☐ selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis ☐ maintains, stores and/or disposes of equipment and materials on an independent basis	☐ creates and adheres to detailed timelines; use time/schedules/planners effectively, prioritizing tasks on a consistent basis ☐ uses a wide range of information (material and human resources) in order to support and enhance the basic requirement ☐ recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies) ☐ demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation ☐ participates in problem solving as a process ☐ learns a range of problem-solving skills and approaches ☐ practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ identifies the problem and selects an appropriate problem-solving approach responding appropriately to specified goals and constraints ☐ applies problem-solving skills to a directed or a self-directed activity by: – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action	☐ thinks critically and acts logically in the context of problem solving ☐ transfers problem-solving skills to real-life situations by generating new possibilities ☐ prepares implementation plans ☐ recognizes risks	☐ identifies and resolves problems efficiently and effectively ☐ identifies and suggest new ideas to get the job done creatively by: – combining ideas or information new ways – making connections between seemingly unrelated ideas – actively seeking out opportunities

Stage 1— The student:	Stage 2— The student:	Stage 3— The student:	Stage 4— The student:
Communicating Effectively ☐ uses communication skills; e.g., reading, writing, illustrating, speaking ☐ uses language in appropriate context ☐ listens to understand and learn ☐ demonstrates positive interpersonal skills in selected contexts	☐ communicates thoughts, feelings, and ideas to justify or challenges a position using written, oral and visual means ☐ uses technical language appropriately ☐ listens and responds to understand and learn ☐ demonstrates positive interpersonal skills in many contexts	☐ prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned argument ☐ encourages, persuades, convinces or otherwise motivates individuals ☐ listens and responds to understand, learn and teach ☐ demonstrates positive interpersonal skills in most contexts	☐ negotiates effectively by working towards an agreement that may involve exchanging specific resources or resolving divergent interests ☐ negotiates and works towards a consensus ☐ listens and responds to understand, learn, teach and evaluate ☐ promotes positive interpersonal skills among others
Working with Others ☐ fulfills responsibility in a group project ☐ works collaboratively in structured situations with peer members ☐ acknowledges the opinions and contributions of others in the group	☐  ☐ cooperates to achieve group results ☐ maintains a balance between speaking, listening and responding in group discussion ☐ respects the feelings and views of others	☐ seeks a team approach as appropriate based on group needs and benefits e.g. idea potential, variety of strengths, sharing of work load ☐ works in a team or group: – encourages and supports team members – helps others in a positive manner – provides leadership/ followership as required – negotiates and works toward consensus as required	☐ leads, where appropriate, mobilizing the group for high performance ☐ understands and works within the context of the group ☐ prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility Attendance ☐ demonstrates responsibility in attendance, punctuality and task completion Safety ☐ follows personal and environmental health and safety procedures ☐ identifies immediate hazards and their impact on self, others and the environment ☐ follows appropriate/emergency response procedures Ethics ☐ makes personal judgements about whether certain behaviour/ action is right or wrong	☐  ☐ recognizes and follows personal and environmental health and safety procedures ☐ identifies immediate and potential hazards and their impact on self, others and the environment ☐  ☐ assesses how personal judgements affect other peer members and/or family; e.g., home and school	☐  ☐ establishes and follows personal and environmental health and safety procedures ☐  ☐  ☐ assesses the implications of personal/group actions within the broader community; e.g., workplace	☐  ☐ transfers and applies personal and environmental health and safety procedures to a variety of environments and situations ☐  ☐  ☐ demonstrates accountability for actions taken to address immediate and potential hazards ☐ analyses the implications of personal/group actions within the global context ☐ states and defends a personal code of ethics as required
Developmental Framework ★ • Simple task • Structured environment • Directed learning	• Task with limited variable • Less structured environment • Limited direction	• Task with multiple variables • Flexible environment • Self-directed learning, seeking assistance as required	• Complex task • Open environment • Self-directed/self-motivated

GENERIC RATING SCALE

S C A L E	RUBRIC STATEMENT (included in assessment tool/statements in <i>italics</i> are optional)	IS TASK/ PROJECT COMPLETED?	PROBLEM SOLVING: STUDENT INITIATIVE VS TEACHER DIRECTION/ SUPPORT	USE OF TOOLS, MATERIALS, PROCESSES	STANDARDS OF QUALITY/ PRODUCTIVITY	TEAMWORK LEADERSHIP	SERVICE CLIENT/ CUSTOMER
0	<i>The student:</i> has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.	Has not completed defined outcomes.		Tools, materials and/or processes are used inappropriately.			
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. <i>Quality and productivity are reasonably consistent. Works cooperatively. Provides a limited range of customer/client services.</i>	Meets defined outcomes.	Follows a guided plan of action.	A limited range of tools, materials and/or processes are used appropriately.	<i>Quality and productivity are reasonably consistent.</i>	<i>Works cooperatively.</i>	<i>Provides a limited range of customer/client services.</i>
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. <i>Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.</i>	Meets defined outcomes.	Plans and solves problems with limited assistance.	Tools, materials and/or processes are selected and used appropriately.	<i>Quality and productivity are reasonably consistent.</i>	<i>Works cooperatively to achieve team goals.</i>	<i>Identifies and provides customer/client services.</i>
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. <i>Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.</i>	Meets defined outcomes.	Plans and solves problems in a self- directed manner.	Tools, materials and/or processes are selected and used efficiently and effectively.	<i>Quality and productivity are consistent.</i>	<i>Works cooperatively and contributes ideas and suggestions that enhance team effort.</i>	<i>Analyzes and provides effective client/customer services.</i>
4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. <i>Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute team goals. Analyzes and provides effective client/customer services beyond expectations.</i>	Exceeds defined outcomes.	Plans and solves problems effectively and creatively in a self- directed manner.	Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.	<i>Quality, particularly details and finishes and productivity are consistent and exceed standards.</i>	<i>Leads others to contribute team goals.</i>	<i>Analyzes and provides effective client/customer services beyond expectations.</i>

INTRODUCTORY	INTERMEDIATE	ADVANCED
<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree • poses an important question regarding the issue • accesses basic in-school/community information sources regarding the issue • uses one or more information-gathering techniques Analyzing Perspectives • clarifies different points of view regarding the issue; <i>e.g., social, economic, environmental</i> • states a position on the issue and logical reasons for adopting that position • states an opposing position on the issue and logical reasons for adopting that position • identifies sources of conflict among different positions • distinguishes between fact and fiction/opinion/theory Collaboration and Teamwork • shares work appropriately among group members • respects the views of others Evaluating Choices/Making Decisions • identifies useful alternatives regarding the issue • establishes criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate alternative based on established criteria • reflects on strengths/weaknesses of decisions by considering consequences • communicates information in a logical sequence to justify choices/decisions made	<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree, explaining areas of disagreement • poses one or more thoughtful questions regarding the issue • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques Analyzing Perspectives • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related</i> • states a position on the issue and logical reasons for adopting that position • states two or more opposing positions on the issue and logical reasons for adopting each position • describes interrelationships among different perspectives/points of view • determines accuracy/currency/reliability of information and ideas Collaboration and Teamwork • shares work appropriately among group members • respects and considers the views of others • negotiates solutions to problems Evaluating Choices/Making Decisions • identifies important and appropriate alternatives regarding the issue • establishes knowledge- and value-based criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate alternative by showing differences among choices • assesses strengths/weaknesses of decisions by considering consequences • communicates ideas in a logical sequence with supporting detail to justify choices/decisions made	<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree, explaining specific causes of disagreement • poses thoughtful questions regarding the issue • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data Analyzing Perspectives • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related, scientific, political</i> • states a position on the issue and insightful reasons for adopting that position • states three or more opposing positions on the issue and thoughtful reasons for adopting each position • analyzes interrelationships among different perspectives/points of view • recognizes underlying bias/assumptions/values in information and ideas Collaboration and Teamwork • shares work appropriately among group members • respects and considers the views of others • negotiates with sensitivity solutions to problems Evaluating Choices/Making Decisions • describes in detail important and appropriate alternatives regarding the issue • establishes knowledge- and value-based criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate and useful alternative by showing differences among choices • assesses strengths/weaknesses of decisions by considering consequences and implications • communicates thoughts/feelings/ideas clearly to justify choices/decisions made

INTRODUCTORY	INTERMEDIATE	ADVANCED
<i>The student:</i> Management • prepares self for task • organizes and works in an orderly manner • carries out instructions accurately • uses time effectively Teamwork • cooperates with group members • shares work appropriately among group members Use of Equipment and Materials • selects and uses appropriate equipment/materials • follows safe procedures/techniques • weighs and measures accurately • returns clean equipment/materials to storage areas Investigative Techniques • gathers and applies information from at least one source • makes predictions that can be tested • sets up and conducts experiments to test a prediction • distinguishes between manipulated/responding variables • obtains results that can be used to determine if some aspect of the prediction is accurate • summarizes important experimental outcomes	<i>The student:</i> Management • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively • adheres to routine procedures Teamwork • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems Use of Equipment and Materials • selects and uses appropriate equipment/materials • models safe procedures/techniques • weighs and measures accurately • practises proper sanitation procedures • minimizes waste of materials • advises of potential hazards and necessary repairs Investigative Techniques • gathers and applies information from a variety of sources • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • identifies and explains manipulated/responding variables • obtains accurate results that confirm/reject the prediction • summarizes and applies experimental outcomes	<i>The student:</i> Management • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively in a logical sequence • displays leadership in adhering to routine procedures • attempts to solve problems prior to requesting help Teamwork • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication skills Use of Equipment and Materials • selects and uses equipment/materials independently • demonstrates concern for safe procedures/techniques • weighs and measures accurately and efficiently • practises proper sanitation procedures • minimizes waste of materials • anticipates potential hazards and emergency response Investigative Techniques • uses relevant information to explain observations • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • analyzes relationships among manipulated/responding variables • obtains accurate results that confirm/reject prediction and answer related questions • summarizes, applies and evaluates experimental outcomes

INTRODUCTORY	INTERMEDIATE	ADVANCED
<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree • poses an important question regarding the issue • accesses basic in-school/community information sources regarding the issue • uses one or more information-gathering techniques Analyzing Perspectives • states a position on the issue and logical reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences • clarifies different points of view regarding the issue; <i>e.g., social, economic, environmental</i> • distinguishes between fact and fiction/opinion/theory Collaboration and Teamwork • works with a range of peer members • shares information/opinions/suggestions through group discussion • listens to and respects the views of others Negotiating and Debating • presents a convincing argument in logical sequence supporting a position adopted on the issue • provides a relevant response to opposing arguments • speaks clearly so the argument can be understood • establishes a shared understanding of key alternatives and consequences relevant to the issue	<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree, explaining areas of disagreement • poses one or more thoughtful questions regarding the issue • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques Analyzing Perspectives • states a position on the issue and logical reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related</i> • determines accuracy/currency/reliability of information and ideas Collaboration and Teamwork • works with a range of peer members • shares information/opinions/suggestions, maintaining a balance between speaking and listening • listens to and respects the views of others, requesting clarification as necessary from other group members Negotiating and Debating • presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance • provides a relevant and convincing response to opposing arguments • speaks clearly without hesitation so the argument can be understood • negotiates a shared agreement on preferred alternatives relevant to the issue	<i>The student:</i> Preparation and Planning • accurately describes an issue on which people disagree, explaining specific causes of disagreement • poses thoughtful questions regarding the issue • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data Analyzing Perspectives • states a position on the issue and insightful reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences and implications • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related, scientific, political</i> • recognizes underlying bias/assumptions/values in information and ideas Collaboration and Teamwork • works with a wide range of peer members • shares information/opinions/suggestions, maintaining a balance between speaking and listening • listens to and respects the views of others, requesting clarification as necessary from other group members Negotiating and Debating • presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance and backing each with sound evidence • provides a relevant and convincing rebuttal to opposing arguments • speaks clearly without hesitation so the argument can be understood by all listeners • negotiates a shared agreement on preferred alternatives by resolving divergent points of view

INTRODUCTORY	INTERMEDIATE	ADVANCED
<i>The student:</i> Preparation and Planning • sets goals and follows instructions accurately • responds to directed questions and follows necessary steps to find answers • accesses basic in-school/community information sources • interprets and organizes information into a logical sequence • records information accurately, using correct technical terms • uses time effectively Presentation • demonstrates effective use of at least one medium of communication: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, basic format</i> <u>Oral:</u> <i>voice projection, body language</i> <u>Audio-Visual:</u> <i>techniques, tools</i> • uses correct grammatical convention and technical terms through proofreading/editing • provides an introduction that describes the purpose of the project • communicates information in a logical sequence • states a conclusion based on a summary of facts • provides a reference list of three or more basic information sources	<i>The student:</i> Preparation and Planning • sets goals and describes steps to achieve them • uses personal initiative to formulate questions and find answers • accesses a range of relevant in-school/community resources • interprets, organizes and combines information into a logical sequence • records information accurately with appropriate supporting detail and using correct technical terms • plans and uses time effectively • gathers and responds to feedback regarding approach to task and project status Presentation • demonstrates effective use of at least two communication media: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, format (formal/informal)</i> <u>Oral:</u> <i>voice projection, body language, appearance</i> <u>Audio-Visual:</u> <i>techniques, tools, clarity</i> • maintains acceptable grammatical and technical standards through proofreading and editing • provides an introduction that describes the purpose and scope of the project • communicates ideas into a logical sequence with sufficient supporting detail • states a conclusion by synthesizing the information gathered • provides a reference list that includes five or more relevant information sources	<i>The student:</i> Preparation and Planning • sets goals and describes steps to achieve them • uses personal initiative to formulate questions and find answers • accesses a range of relevant information sources and recognizes when additional information is required • interprets, organizes and combines information in creative and thoughtful ways • records information accurately, using appropriate technical terms and supporting detail • plans and uses time effectively, prioritizing tasks on a consistent basis • assesses and refines approach to task and project status based on feedback and reflection Presentation • demonstrates effective use of a variety of communication media: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, format (formal/informal, technical/literary)</i> <u>Oral:</u> <i>voice projection, body language, appearance, enthusiasm, evidence of prior practice</i> <u>Audio-Visual:</u> <i>techniques, tools, clarity, speed and pacing</i> • maintains acceptable grammatical and technical standards through proofreading and editing • provides an introduction that describes the purpose and scope of the project • communicates thoughts/feelings/ideas clearly to justify or challenge a position • states a conclusion by analyzing and synthesizing the information gathered • gives evidence of adequate research through a reference list including seven or more relevant information sources

INTRODUCTORY	INTERMEDIATE	ADVANCED
<i>The student:</i> Preparation and Planning • sets goals and follows instructions accurately • adheres to established timelines • responds to directed questions and follows necessary steps to find answers • uses time effectively Information Gathering and Processing • accesses basic in-school/community information sources • uses one or more information-gathering techniques • interprets and organizes information in a logical sequence • records information accurately, using correct technical terms • distinguishes between fact and fiction/opinion/theory • responds to feedback when current approach is not working Collaboration and Teamwork • cooperates with group members • shares work appropriately among group members Information Sharing • demonstrates effective use of one or more communication media; <i>e.g., written, oral, audio-visual</i> • communicates information in a logical sequence • uses correct grammatical convention and technical terms • cites three or more basic information sources	<i>The student:</i> Preparation and Planning • sets goals and establishes steps to achieve them • creates and adheres to useful timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively Information Gathering and Processing • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques • interprets, organizes and combines information into a logical sequence • records information accurately with appropriate supporting detail and using correct technical terms • determines accuracy/currency/reliability of information sources • gathers and responds to feedback regarding approach to the task Collaboration and Teamwork • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems Information Sharing • demonstrates effective use of two or more communication media; <i>e.g., written, oral, audio-visual</i> • communicates ideas in a logical sequence with sufficient supporting detail • maintains acceptable grammatical and technical standards • cites five or more relevant information sources	<i>The student:</i> Preparation and Planning • sets clear goals and establishes steps to achieve them • creates and adheres to detailed timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively, prioritizing tasks on a consistent basis Information Gathering and Processing • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data • interprets, organizes and combines information in creative and thoughtful ways • records information accurately with appropriate supporting detail and using correct technical terms • recognizes underlying bias/assumptions/values in information sources • assesses and refines approach to the task and project status based on feedback and reflection Collaboration and Teamwork • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication and leadership skills Information Sharing • demonstrates effective use of a variety of communication media; <i>e.g., written, oral, audio-visual</i> • communicates thoughts/feelings/ideas clearly to justify or challenge a position • maintains acceptable grammatical and technical standards • gives evidence of adequate information gathering by citing seven or more relevant information sources

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0 N/A
Content	4	3	2	1	0 N/A
Presenting/Reporting	4	3	2	1	0 N/A

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instruction accurately
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ uses time effectively.

Content**Presenting/Reporting**

- ☐ demonstrates effective use of one or more communication media
e.g., Written: spelling, punctuation, grammar, basic format
- ☐ uses correct grammatical convention and technical terms through proof-reading/editing
- ☐ provides an introduction that describes the purpose of the project
- ☐ communicates information in a logical sequence
- ☐ states a conclusion based on a summary of facts
- ☐ provides a reference list of 3 or more basic information sources.

Content (continued)**REFLECTIONS/COMMENTS:**

TASK	OBSERVATION/RATING			
Preparation and Planning	4	3	2	1 0 N/A
Content	4	3	2	1 0 N/A
Presenting/Reporting	4	3	2	1 0 N/A

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ access a range of relevant in-school/community resources

- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ plans and uses time effectively
- ☐ gathers and responds to feedback regarding approach to task and project status.

Content**Content (continued)****Presenting/Reporting**

- ☐ demonstrates effective use of at least two communication media
e.g., Written: spelling, punctuation, grammar, format (formal/informal)
Oral: voice projection, body language, appearance
Audio-Visual: techniques, tools, clarity
- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates ideas into a logical sequence with sufficient supporting detail
- ☐ states a conclusion by synthesizing the information gathered
- ☐ provides a reference list that includes 5 or more relevant information sources.

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0
					N/A

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection.

Content (continued)**Presenting/Reporting**

- ☐ demonstrates effective use of a variety of communication media
e.g., Written: spelling, punctuation, grammar, format (formal/informal, technical/literary)
- Oral: voice projection, body language, appearance, enthusiasm, evidence of prior practice*
- Audio-Visual: techniques, tools, clarity, speed and pacing*
- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including 7 or more relevant information sources.

Content**REFLECTIONS/COMMENTS:**

TASK	OBSERVATION/RATING
Preparation and Planning	N/A 0 1 2 3 4
Information Gathering and Processing	N/A 0 1 2 3 4
Content	N/A 0 1 2 3 4
Collaboration and Teamwork	N/A 0 1 2 3 4
Information Sharing	N/A 0 1 2 3 4
TOTAL	

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

CSB: 96 06 07

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing

- ☐ accesses basic in-school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/opinion/theory
- ☐ responds to feedback when current approach is not working

Content

- ☐ describes one or more career clusters within the field; e.g.:
 - labour-based
 - technical
 - professional

Content (continued)

- ☐ identifies and describe occupations relevant to one or more career clusters; e.g.:
 - nature of the occupation
 - duties of the employee
- ☐ provides a survey of current employment statistics relevant to one or more career clusters; e.g.:
 - types of occupations
 - number of employees
- ☐ identifies entry requirements and training programs relevant to one or more career clusters; e.g.:
 - entrance requirements and competencies
 - type of training programs
- ☐ assesses current and future employment opportunities and trends; e.g.:
 - local and national needs
 - opportunities for advancement

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing

- ☐ demonstrates effective use of one or more communication media:
 - e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical/technical conventions
- ☐ cites basic information sources.

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING			
Preparation and Planning	N/A	0	1	2 3 4
Information Gathering and Processing	N/A	0	1	2 3 4
Content	N/A	0	1	2 3 4
Collaboration and Teamwork	N/A	0	1	2 3 4
Information Sharing	N/A	0	1	2 3 4
TOTAL				

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
 - 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
 - 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
 - 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

Agriculture /G.20
(Interim 1994)

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing

- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content (continued)

- ☐ duties of the employee
- ☐ workplace conditions
- ☐ provides a survey of current employment statistics relevant to one or more career clusters; e.g.:
 - types of occupations
 - number of employees
 - employment trends
- ☐ identifies entry requirements and training programs relevant to one or more career clusters; e.g.:
 - entrance requirements and competencies
 - type and extent of training programs
- ☐ assesses current and future employment opportunities and trends; e.g.:
 - local, national and international needs
 - opportunities for advancement and/or career change

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing

- ☐ demonstrates effective use of two or more communication media: e.g., *written, oral, audio-visual*
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites relevant information sources.

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING
Preparation and Planning	N/A 0 1 2 3 4
Information Gathering and Processing	N/A 0 1 2 3 4
Content	N/A 0 1 2 3 4
Collaboration and Teamwork	N/A 0 1 2 3 4
Information Sharing	N/A 0 1 2 3 4
TOTAL	

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

CSB: 96 06 07

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content

- ☐ describes one or more career clusters within the field; e.g.:
 - labour-based
 - technical
 - professional
- ☐ identifies and describes occupations relevant to one or more career clusters; e.g.:
 - nature of the occupation
 - duties of the employee
 - workplace conditions
 - salary/wages and employee benefits

Content (continued)

- ☐ provides a survey of current employment statistics relevant to one or more career clusters; e.g.:
 - types of occupations
 - number of employees
 - employment trends
- ☐ identifies entry requirements and training programs relevant to one or more career clusters; e.g.:
 - entrance requirements and competencies
 - type and extent of training programs
 - post-secondary institutions
- ☐ assesses current and future employment opportunities and trends; e.g.:
 - local, national and international needs
 - opportunities for advancement and/or career change
 - opportunities for self-employment and entrepreneurship

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing

- ☐ demonstrates effective use of a variety of communication media; e.g., *written, oral, audio-visual*
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing relevant information sources.

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0
	N/A				

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ accurately describes an issue on which people disagree
- ☐ poses an important question regarding the issue
- ☐ accesses basic in-school/community information sources regarding the issue
- ☐ uses one or more information-gathering techniques

Analyzing Perspectives

- ☐ states a position on the issue and logical reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences
- ☐ clarifies different points of view regarding the issue: *e.g., social, economic, environmental*
- ☐ distinguishes between fact and fiction/ opinion/theory

Collaboration and Teamwork

- ☐ works with a range of peer members
- ☐ shares information/opinions/suggestions through group discussion
- ☐ listens to and respects the views of others

Negotiating and Debating

- ☐ presents a convincing argument in logical sequence supporting a position adopted on the issue
- ☐ provides a relevant response to opposing arguments
- ☐ speaks clearly so the argument can be understood
- ☐ establishes a shared understanding of key alternatives and consequences relevant to the issue

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0 N/A
Content	4	3	2	1	0 N/A
Presenting/Reporting	4	3	2	1	0 N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ accurately describes an issue on which people disagree, explaining areas of disagreement
- ☐ poses one or more thoughtful questions regarding the issue
- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques

Analyzing Perspectives

- ☐ states a position on the issue and logical reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences
- ☐ categorizes different points of view regarding the issue: *e.g., cultural, ethical, economic, environmental, health-related*
- ☐ determines accuracy/currency/reliability of information and ideas

Collaboration and Teamwork

- ☐ works with a range of peer members
- ☐ shares information/opinions/suggestions, and maintains a balance between speaking and listening
- ☐ listens to and respects the views of others, and requests clarification as necessary from other group members

Negotiating and Debating

- ☐ presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance
- ☐ provides a relevant and convincing response to opposing arguments
- ☐ speaks clearly without hesitation so the argument can be understood
- ☐ negotiates a shared agreement on preferred alternatives relevant to the issue

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0
					N/A

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ accurately describes an issue on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding the issue
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Collaboration and Teamwork (continued)

- ☐ works with a wide range of peer members
- ☐ shares information/opinions/suggestions, and maintains a balance between speaking and listening
- ☐ listens to and respects the views of others, and requests clarification as necessary from other group members

Analyzing Perspectives

- ☐ states a position on the issue and insightful reasons for adopting that position
- ☐ explains why the issue is important by presenting examples of possible consequences and implications
- ☐ categorizes different points of view regarding the issue: *e.g., cultural, ethical, economic, environmental, health-related, scientific, political*
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Negotiating and Debating

- ☐ presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance and backing each with sound evidence
- ☐ provides a relevant and convincing rebuttal to opposing arguments
- ☐ speaks clearly without hesitation so the argument can be understood by all listeners
- ☐ negotiates a shared agreement on preferred alternatives by resolving divergent points of view

REFLECTIONS/COMMENTS:

SAMPLE ISSUES FOR RESEARCH, ANALYSIS AND DEBATE

• Biodiversity of Commercial Plant/Animal Species	• Genetic Engineering of Plants/Animals
• Land Reform in Developing Nations	• Foreign Ownership of Arable Land in the Third World
• Declining Soil Profiles on Arable Land	• Drought, Famine and International Food Aid
• Use of Pesticides	• The Greenhouse Effect
• Ground Water Pollution	• Agricultural Runoff
• Agriculture Subsidies	• International Trade Agreements
• Urban Encroachment on Rural Farm Land	• Conscription of Farmers in Times of War
• Cost of Protein Production	• Water Rights
• Use of Arable Land For Cash Crops or Food Crops	• Desertification
• Slaughter of Livestock	• Hormone and Drug Use
• Use of Animals in Rodeo Events	• Artificial Insemination
• Livestock Housing	• Dehorning/Castration/Tooth Removal
•	•
•	•

JOURNAL ENTRY DATE:	#1	#2	#3	#4	#5
Preparation and Planning	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Analyzing Impacts/Interactions	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Identifying Trends/Making Predictions	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
Presenting and Reporting	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A	4 3 2 1 0 N/A
TOTAL:					

STANDARD: Complete 5 journal entries; address criteria for reflection to a standard of 1 in introductory level modules, 2 in intermediate level modules and 3 in advanced level modules.

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

CRITERIA FOR SUMMATIVE REFLECTION

The student:

Preparation and Planning

- ☐ sets goals and follows instructions accurately
- ☐ establishes a schedule of activities for completing each journal entry
- ☐ accesses in-school/community sources of information
- ☐ plans and uses time effectively

Analyzing Impacts/Interactions

- ☐ considers the impact of one or more agriculture practices on social/cultural values, environmental factors and/or economic viability within the local community
- ☐ explains interactions and potential sources of conflict among different interest groups; *e.g.: Who? What? Where? Why?*
- ☐ balances information and values
- ☐ demonstrates respect for and considers the views of others

Identifying Trends/Making Predictions

- ☐ considers the impact of consumer needs/wants/choices/decisions on agriculture; *e.g.: aesthetic, economic, health, recreational*
- ☐ relates current consumption patterns and changing world markets to trends in agriculture
- ☐ identifies developments in technology likely to influence future agriculture
- ☐ explains how the need for sustainable production systems and environmental stewardship may impact future agriculture

Presenting and Reporting

- ☐ provides an introduction that states the purpose of the journal entry
- ☐ communicates information and ideas clearly in a logical sequence
- ☐ uses correct grammatical convention and technical terms through proof-reading/editing
- ☐ states a conclusion based on a summary of information and ideas

RATING	ASSESSMENT CRITERIA
4 3 2 1 0	<i>The student:</i> Preparation and Planning ☐ identifies a specific issue regarding the forest environment ☐ talks to others in order to clarify ideas ☐ accesses basic in-school/community resources regarding the issue ☐ identifies appropriate individuals/agencies to contact ☐ establishes a position on the issue ☐ Writing the Letter ☐ clearly states a position on the issue and a rationale for adopting that position ☐ considers the implications of various approaches for dealing with the issue ☐ cites references to support information/views ☐ maintains an appropriate tone of communication ☐ requests a response to the letter ☐ uses correct grammatical and technical conventions ☐ demonstrates proof-reading and editing skills ☐
4 3 2 1 0	Critiquing the Response ☐ identifies important elements of the response: – acknowledgment of support or concern – statement of position and rationale – reference to supporting information/views – comments regarding future options/alternatives ☐ assesses quality of the response based on: – logical development of ideas – quality/quantity of supporting information and views – tone of communication ☐ suggests possible improvements to the response and original letter ☐

Rating Scale*The student:*

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING			
Preparation and Planning	4	3	2	1 0 N/A
Technical Components	4	3	2	1 0 N/A
Information Sharing	4	3	2	1 0 N/A
Collaboration and Teamwork	4	3	2	1 0 N/A

STANDARD IS 1 FOR INTRODUCTORY LEVEL MODULES, 2 FOR INTERMEDIATE LEVEL MODULES, AND 3 FOR ADVANCED LEVEL MODULES

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instructions
- ☐ responds to directed questions and/or follows necessary steps to find answers
- ☐ uses time effectively
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information logically
- ☐ transfers and/or extrapolates data from print and visual sources to create maps

Technical Components

- ☐ prepares an outline of the mapped area to scale
- ☐ provides an appropriate map title
- ☐ records relevant location data
- ☐ provides a map legend that explains:
 - map symbols
 - map scale
- ☐ organizes use of space; e.g.:
 - map size in relationship to paper size
 - use of borders
 - position of legend

Technical Components (continued)

- ☐ demonstrated appropriate use of colour, shading and/or patterns
- ☐ produces a document free of wrinkles and smudges
- ☐ maintains appropriate technical standards through proof-reading and editing; e.g.:
 - spelling
 - legibility

Information Sharing

- ☐ communicates map content through oral presentation
- ☐ demonstrates ability to use map overlays in presentation
- ☐ poses questions based on information provided in map

Collaboration and Teamwork

- ☐ shares work appropriately among group members
- ☐ respects the views of others
- ☐ negotiates solutions to problems

REFLECTIONS/COMMENTS

Student Name:	Date:
Media Source:	
Method of Presentation:	
Issue/Topic:	

GOALS/OBJECTIVES OF THE MEDIA PRESENTATION

SUMMARY OF INFORMATION PRESENTED (e.g., topic/issue, position taken, supporting detail, implications/consequences)

QUALITY/OBJECTIVITY OF INFORMATION PRESENTED (e.g., bias-balance, currency/reliability, logic/reasoning)

PERSONAL IMPACT OF MEDIA PRESENTATION

ASSESSING QUALITY/OBJECTIVITY	
Yes	No
☐	☐
<i>The media presentation:</i>	
☐	☐
clearly describes a topic/issue/position taken with sufficient supporting detail	
☐	☐
demonstrates bias-balance in the manner of presentation	
☐	☐
makes reference to different points of view (e.g., social, economic, environmental)	
☐	☐
distinguishes between fact and fiction/opinion/theory	
☐	☐
references current and reliable sources for information and ideas	
☐	☐
draws valid conclusions based on analysis/synthesis of information	
☐	☐

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

RATING	ASSESSMENT CRITERIA
	<i>The student:</i>
4	Schedule Tasks
3	☐ sets goals and follows instructions accurately
2	☐ identifies major tasks and organizes them into a logical sequence
1	☐ uses time effectively
0	☐
4	Gather Relevant Information
3	☐ defines a need within an agriculture/horticulture industry
2	☐ accesses basic in-school/community resources regarding similar needs and how they were addressed
1	☐ poses important questions regarding design potential
0	☐ talks to others in order to clarify ideas
	☐ interprets and organizes information into a logical sequence
	☐
4	Construct a Drawing/Model
3	☐ makes reasoned judgements regarding design potential
2	☐ generates ideas/alternatives regarding a mechanical system and/or process that will address the need
1	☐ selects the most appropriate alternative based on:
0	☐ – defined needs/problems
	☐ – efficient use of resources
	☐ – human and environmental safety
	☐ constructs a simple drawing and/or model of the technology that illustrates/demonstrates:
	☐ – component parts
	☐ – principles of operation
	☐
4	Assess the Process and Outcomes
3	☐ assesses the design process and technology outcomes in relation to original needs, efficient use of resources and human/environmental safety
2	☐ summarizes opportunities and challenges relevant to industry applications of the technology
1	☐
0	☐ suggests possible improvements to the design process and/or technology outcomes
	☐

STANDARD IS 1 IN INTRODUCTORY LEVEL MODULES, 2 IN INTERMEDIATE LEVEL MODULES AND 3 IN ADVANCED LEVEL MODULES

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0
Technical Components	4	3	2	1	0
Information Sharing	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0

STANDARD IS 1 FOR INTRODUCTORY LEVEL MODULES, 2 FOR INTERMEDIATE LEVEL MODULES, AND 3 FOR ADVANCED LEVEL MODULES

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

CSB: 96 06 07

Agriculture /G.31
(Interim 1994)

TASK CHECKLIST	
<i>The student:</i>	
Preparation and Planning ☐ sets goals and follows instructions ☐ responds to directed questions and/or follows necessary steps to find answers ☐ uses time effectively ☐ accesses basic in-school/community information sources ☐ interprets and organizes information logically ☐ transfers and/or extrapolates data from print and visual sources to create a diagram/technical drawing	Technical Components (continued) ☐ accurately labels diagram/technical drawing components ☐ provides an appropriate title for the diagram/technical drawing ☐ demonstrates appropriate use of colour, shading and/or patterns ☐ produces a document free of wrinkles and smudges ☐ maintains appropriate technical standards through proof-reading and editing; e.g.: – spelling – readability
Technical Components ☐ selects and uses appropriate drawing instruments and tools ☐ prepares an accurate outline of the theme to scale ☐ adds detail to the theme as required to ensure recognition and realism ☐ organizes use of space; e.g.: – diagram/technical drawing in relation to paper size – use of borders – position of labels	Information Sharing ☐ communicates content of diagram/technical drawing through oral presentation ☐ demonstrates ability to use overlays in presentation ☐ poses questions based on information provided in the diagram/technical drawing
Collaboration and Teamwork ☐ shares work appropriately among group members ☐ respects the views of others ☐ negotiates solutions to problems	

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0 N/A
Technical Components	4	3	2	1	0 N/A
Information Sharing	4	3	2	1	0 N/A
Collaboration and Teamwork	4	3	2	1	0 N/A

STANDARD IS 1 FOR INTRODUCTORY LEVEL MODULES, 2 FOR INTERMEDIATE LEVEL MODULES, AND 3 FOR ADVANCED LEVEL MODULES

Rating Scale

The student:

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

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1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instructions
- ☐ responds to directed questions and/or follows necessary steps to find answers
- ☐ uses time effectively
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information logically
- ☐ transfers and/or extrapolates data from print and visual sources to create a flow chart
- ☐

Technical Components

- ☐ prepares an outline of steps/processes in proper sequence and order
- ☐ organizes use of space in relation to paper size
- ☐ selects and uses appropriate drawing instruments and tools
- ☐ creates a flow chart that:
 - has a definite beginning and end
 - clearly indicates the sequencing of steps/processes
- ☐ provides arrows to indicate correct sequence of steps/processes

Technical Components (continued)

- ☐ labels flow chart components as required
- ☐ provides an appropriate title for the flow chart
- ☐ demonstrates appropriate use of colour, shading and/or patterns
- ☐ produces a document free of wrinkles and smudges
- ☐ maintains appropriate technical standards through proof-reading and editing; e.g.:
 - spelling
 - legibility
- ☐

Information Sharing

- ☐ communicates content of flow chart through oral presentation
- ☐ demonstrates ability to use flow chart overlays in presentation
- ☐ poses questions based on information provided in the flow chart
- ☐

Collaboration and Teamwork

- ☐ shares work appropriately among group members
- ☐ respects the views of others
- ☐ negotiates solutions to problems
- ☐

REFLECTIONS/COMMENTS

Student Name:	Module:	Date:
Destination:		
Contact Person:		
Title/Position of Contact Person:		

PURPOSE OF TRIP (Teacher Defined)

STUDENT EXPECTATIONS (What do you expect to observe/learn?)

ACTUAL OBSERVATIONS (What did you actually observe/learn?)

APPLICATIONS OF AGRICULTURE PRACTICES

REFLECTION ON FIELD INVESTIGATION (What did you find most interesting? least interesting?)

<u>OBSERVED CAREERS</u>	
Career #1: Title: Education Requirements: Salary Range: Pros: Cons:	
Career #2: Title: Education Requirements: Salary Range: Pros: Cons:	
Career #3: Title: Education Requirements: Salary Range: Pros: Cons:	
<u>Would any of the observed careers appeal to you? Why or why not?</u>	

SUMMATIVE CHECKLIST (to be completed by teacher/supervisor)	
<i>The student:</i>	
☐ identifies trip goals and follows instructions accurately	
☐ adheres to established itinerary/timelines	
☐ demonstrates appropriate use of equipment, supplies and/or clothing	
☐ adheres to acceptable safety standards and behavioural expectations as established by school policy	
☐ accesses resources available on site	
☐ uses effective questioning techniques to gather information	
☐ interprets and records information accurately	
☐ follows directions/procedures indicated by tour guide and/or as established by industry policy while on site	
☐ completes all sections of the observation checklist for each field-based investigation.	
☐	
☐	

Floral Design I				Floral Design II		Floral Design III							
Vase Arrangements • bud vase • larger vase		Round (Mound) Arrangements		Triangular Arrangements • symmetrical • asymmetrical		Centrepieces • horizontal • pyramidal		European Arrangements • presentation • cluster • vegetative • parallel • hogarth • curve		Oriental Arrangements • Ikebana • Moribana • Ritka		Bridal Design, Calendar Event and Other Special Occasion Arrangements • nosegay • cascade • crescent • wreath • garland • display prop	
P R O D U C T													

CUT FLOWERS AND FOLIAGE

Common and Botanical Names	Basic Characteristics	General Use
Dianthus caryophyllus	☐	☐
Rosa	☐	☐
Chrysanthemum	☐	☐
Narcissus	☐	☐
Tulipa	☐	☐
Gypsophila paniculata	☐	☐
Odontoglossum	☐	☐
Delphinium ajacis	☐	☐
Limonium sinuatum	☐	☐
German statice	☐	☐
Helichrysum bracteatum monstrosum	☐	☐
Eucalyptus	☐	☐
Arctiodes adiantiformis	☐	☐
Asparagus setaceus	☐	☐
Ruscus	☐	☐
Dendrobium orchid	☐	☐
Gladiolus hortulanus	☐	☐
Freesia hybrid	☐	☐
Alstroemeria	☐	☐
Anthurium scherzerianum	☐	☐
Aster	☐	☐
Gerberia	☐	☐
Iris	☐	☐
Protea	☐	☐
Stephanotis floribunda	☐	☐
Achillea Filipendulina	☐	☐
Echinops nitro	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

INTERIOR PLANTS

Common and Botanical Names	Basic Characteristics	General Use
Chrysanthemum	☐	☐
Euphorbia pulcherrima	☐	☐
Lilium	☐	☐
Rhododendron indicum	☐	☐
Saintpaulia	☐	☐
Aglaonema species	☐	☐
Asparagus plumosus	☐	☐
Begonia species	☐	☐
Chlorophytum comosum	☐	☐
Cissus species	☐	☐
Cordyline indivisa	☐	☐
Ficus species	☐	☐
Hibiscus	☐	☐
Kalanchoe blossfeldiana	☐	☐
Cyclamen persicum	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

STANDARD: The student identifies by common and botanical names and describes the basic characteristics and general use of:
10 cut flowers and/or foliage specimens
5 interior plants.

REFERENCE GUIDES:

- *Flowers Canada Accreditation Manual, Level I*
- *Home Floral Design* (pp. 15-17)

	Common Name	Growth Habit	Basic Structure
Cereals/Small Grains			
Oats	☐	☐	☐
Barley	☐	☐	☐
Wheat	☐	☐	☐
Rye	☐	☐	☐

Oil Seeds			
Canola	☐	☐	☐
Flax	☐	☐	☐
Sunflower	☐	☐	☐

Grass Seeds/Forage			
Alfalfa	☐	☐	☐
Brome Grass	☐	☐	☐
Fescue	☐	☐	☐
Rye Grass	☐	☐	☐
Timothy	☐	☐	☐
_____	☐		

Vegetables/Fruits	Common Name	Growth Habit	Basic Structure
Beet	☐	☐	☐
Carrot	☐	☐	☐
Corn	☐	☐	☐
Pea	☐	☐	☐
Potato	☐	☐	☐
Raspberry	☐	☐	☐
Strawberry	☐	☐	☐
Turnip	☐	☐	☐

Specialty/Other			
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐

STANDARD: The student identifies the common name, growth habit and basic structure of 10 Alberta field crop species.

TREES AND SHRUBS

TREES AND SHRUBS		PERENNIALS		
Common and Botanical Names	Growth Habit/Taxonomy	Specific Applications in Alberta	Common and Botanical Names	Growth Habit/Taxonomy
Coniferous				
Picea pungens	☐	☐	Arabis alpina	☐
Pinus sylvestris	☐	☐	Artemisia schmidtiana	☐
Pinus mugo	☐	☐	Armeria maritima	☐
Juniperus scopulorum "Blue Heaven"	☐	☐	Asilbe spp.	☐
Thuja occidentalis "Brandon"	☐	☐	Bergenia cordifolia	☐
Thuja occidentalis "Woodwardii"	☐	☐	Cerastium tomentosum	☐
Juniperus sabina	☐	☐	Chrysanthemum x superbum	☐
Juniperus chinensis "Old Gold"	☐	☐	Convallaria majalis	☐
Juniperus sabina tamariscifolia	☐	☐	Delphinium Species	☐
Deciduous			Dicentra spectabilis	☐
Fraxinus pennsylvanica lanceolata	☐	☐	Hemerocallis hybrids	☐
Betula pendula "Gracilis"	☐	☐	Hosta varieties	☐
Prunus Maacki	☐	☐	Iris spp.	☐
Prunus virginiana "Shubert"	☐	☐	Iberis sempervirens	☐
Malus x "Royalty"	☐	☐	Lupinus polyphyllus	☐
Sorbus americana	☐	☐	Lychnis calcedonica	☐
Elaeagnus angustifolia	☐	☐	Paeonia lactiflora	☐
Prunus x cistena	☐	☐	Phlox subulata	☐
Prunus triloba "Multiplex"	☐	☐	Sedum spp.	☐
Potentilla fruticosa	☐	☐	Tradescantia virginiana	☐
Cotoneaster lucidus	☐	☐	_____	☐
Cornus alba	☐	☐	_____	☐
Syringa villosa	☐	☐	_____	☐
Spiraea x bumalda "Froebelli"	☐	☐	_____	☐

STANDARD: The student identifies the common and botanical names, growth habits/taxonomy, and specific applications of 20 tree, shrub, perennial, annual and/or tropical species suited for use in Alberta.

ANNUALS

Common and Botanical Names	Growth Habit/Taxonomy	Specific Applications in Alberta
☐ Ageratum houstonianum	☐	☐
☐ Antirrhinum majum	☐	☐
☐ Coleum x hybrids	☐	☐
☐ Gladiolus hybrids	☐	☐
☐ Lathyrus odoratus	☐	☐
☐ Lobelia erinus	☐	☐
☐ Lobularia maritima	☐	☐
☐ Nicotiana glauca grandiflora	☐	☐
☐ Pelargonium x hortorum	☐	☐
☐ Petunia x hybrida	☐	☐
☐ Portulaca grandiflora	☐	☐
☐ Senecio cineraria	☐	☐
☐ Salvia splendens	☐	☐
☐ Tagetes patula	☐	☐
☐ Viola x wittrockiana	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

TROPICALS

Common and Botanical Names	Growth Habit/Taxonomy	Specific Applications in Alberta
☐ Chrysanthemum	☐	☐
☐ Euphorbia pulcherrima	☐	☐
☐ Liliium	☐	☐
☐ Rhododendron indicum	☐	☐
☐ Saintpaulia	☐	☐
☐ Aglaonema species	☐	☐
☐ Asparagus plumosus	☐	☐
☐ Begonia species	☐	☐
☐ Chlorophytum comosum	☐	☐
☐ Cissus species	☐	☐
☐ Cordyline indivisa	☐	☐
☐ Ficus species	☐	☐
☐ Hibiscus	☐	☐
☐ Kalanchoe blossfeldiana	☐	☐
☐ Cyclamen persicum	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

STANDARD: The student identifies the common and botanical names, growth habits/taxonomy, and specific applications of 20 tree, shrub, perennial, annual and/or tropical species suited for use in Alberta.

TREES, SHRUBS AND GROUNDCOVERS

Common and Botanical Names	General Characteristics/ Growth Habits	Functional Use in Alberta
Coniferous		
Picea pungens	☐	☐
Pinus sylvestris	☐	☐
Pinus mugo	☐	☐
Juniperus scopulorum "Blue Heaven"	☐	☐
Thuja occidentalis "Brandon"	☐	☐
Thuja occidentalis "Woodwardii"	☐	☐
Juniperus sabina	☐	☐
Juniperus chinensis "Old Gold"	☐	☐
Juniperus sabina tamariscifolia	☐	☐
Deciduous		
Fraxinus pennsylvanica lanceolata	☐	☐
Betula pendula "Gracilis"	☐	☐
Prunus Maackii	☐	☐
Prunus virginiana "Shubert"	☐	☐
Malus x "Royalty"	☐	☐
Sorbus americana	☐	☐
Elaeagnus angustifolia	☐	☐
Prunus x cistena	☐	☐
Prunus triloba "Multiplex"	☐	☐
Potentilla fruticosa	☐	☐
Cotoneaster lucidus	☐	☐
Cornus alba	☐	☐
Syringa villosa	☐	☐
Spirea x bumalda "Froebelli"	☐	☐

PERENNIALS

Common and Botanical Names	General Characteristics/ Growth Habits	Functional Use in Alberta
Arabis alpina	☐	☐
Artemisia schmidtiana	☐	☐
Artemisia maritima	☐	☐
Asilbe spp.	☐	☐
Bergenia cordifolia	☐	☐
Cerastium tomentosum	☐	☐
Chrysanthemum x superbum	☐	☐
Convallaria majalis	☐	☐
Delphinium Species	☐	☐
Dicentra spectabilis	☐	☐
Hemerocallis hybrids	☐	☐
Hosta varieties	☐	☐
Iris spp.	☐	☐
Iberis sempervirens	☐	☐
Lupinus polyphyllus	☐	☐
Lychnis calecdonica	☐	☐
Paeonia lactiflora	☐	☐
Phlox subulata	☐	☐
Sedum spp.	☐	☐
Tradescantia virginiana	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

STANDARD: The student identifies the common and botanical names, general characteristics/growth habits and functional use of 15 landscape plants (including tree, shrub, groundcover, flower and turfgrass specimens) suited for use in Alberta landscapes.

ANNUALS

	Common and Botanical Names	General Characteristics/ Growth Habits	Functional Use in Alberta
Ageratum houstonianum	☐	☐	☐
Antirrhinum majum	☐	☐	☐
Coleum x hybrids	☐	☐	☐
Gladiolus hybrids	☐	☐	☐
Lathyrus odoratus	☐	☐	☐
Lobelia erinus	☐	☐	☐
Lobularia maritima	☐	☐	☐
Nicotiana glauca	☐	☐	☐
Nicotiana glauca grandiflora	☐	☐	☐
Pelargonium x hortorum	☐	☐	☐
Petunia x hybrida	☐	☐	☐
Portulaca grandiflora	☐	☐	☐
Senecio cineraria	☐	☐	☐
Salvia splendens	☐	☐	☐
Tagetes patula	☐	☐	☐
Viola x wittrockiana	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐

TURFGRASSES

	Common and Botanical Names	General Characteristics/ Growth Habits	Functional Use in Alberta
Kentucky blue grass	☐	☐	☐
Creeping red fescue	☐	☐	☐
Quack grass	☐	☐	☐
Creeping bent grass	☐	☐	☐
Crested wheat grass	☐	☐	☐
Timothy	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐

STANDARD: The student identifies the common and botanical names, general characteristics/growth habits, and functional use of 15 landscape plants (including tree, shrub, groundcover, flower and turfgrass specimens) suited for use in Alberta landscapes.

PERENNIAL WEEDS

Common Name	Growth Habit	Management Technique
Canada Thistle	☐	☐
Creeping Charlie	☐	☐
Dandelion	☐	☐
Foxtail Barley	☐	☐
Plantain	☐	☐
Purple Loosestrife	☐	☐
Quackgrass	☐	☐
Scentless Chamomile	☐	☐
Toadflax	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

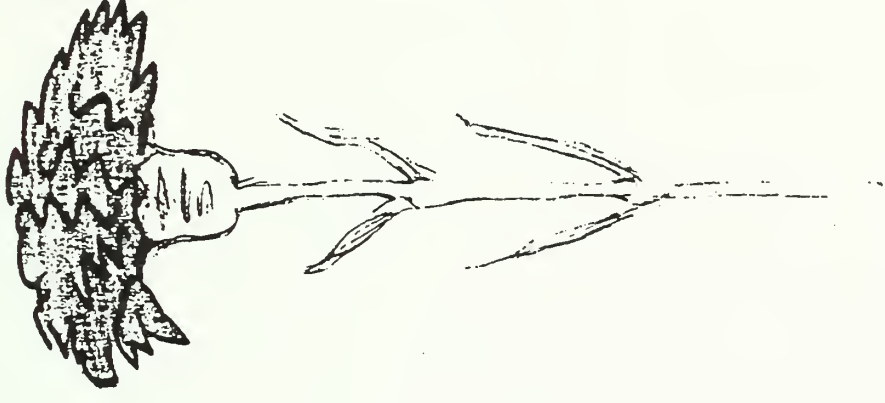
ANNUAL WEEDS

Common Name	Growth Habit	Management Technique
Chickweed	☐	☐
Common Groundsel	☐	☐
Lamb's-quarters	☐	☐
Pineapple Weed	☐	☐
Prostrate Knotweed	☐	☐
Purslane	☐	☐
Round-leaved Mallow	☐	☐
Shepherd's Purse	☐	☐
Stinkweed	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

STANDARD: The student identifies the common name, growth habit and management technique for 5 common weeds found in Alberta landscapes and/or turfgrasses.

Flower/Plant NameCommon: CarnationBotanical: *Dianthus caryophyllus*Basic Characteristics and Features: mass - sometimes formAvailable colours: white, pink, peach, yellow and variegatedSeasonal Availability: all yearVase Life: 14 daysGeneral and Specific Care: recut under warm water

- use preservative solution
- store in cooler
- reds lose colour at low temperature
- avoid ethylene gas
- recut stems

Applications/Use: corsage and boutonniere, bud vases, arrangementsOther Notes: long lasting flower and easy to care for

General Information

Common Name: _____

Classification by Use: e.g., cereal, legume, root, oil, forage, tuber: _____

Growth Habit: e.g., size, form, texture: _____

Structural Characteristics: e.g., root, stem, leaf, flower/seed: _____

Growth Requirements: e.g., water, light, temperature, soil, nutrients, space variables: _____

Selection Criteria: e.g., expected yield, market demand, labour/equipment requirements, pest control, cost of production: _____

Applications/Use: _____

Other Notes: _____

Picture or Sketch

(to include, where possible, structural parts of the root, stem, leaf and flower/seed.)

Plant Name

(tree, shrub, perennial, annual or tropical)

Common: _____

Botanical: _____

Basic Characteristics; e.g., size, form, texture: _____

Special Features; e.g., flowers, leaves, fruit, bark: _____

Suggested Location/Light Requirements; e.g., full sun, partial sun, full shade, partial shade: _____

Care and Handling: _____

Applications/Use: _____

Other Notes: _____

Picture or Sketch

Picture or Sketch	Plant Name (tree, shrub, groundcover, flower, turfgrass) Common: _____ Botanical: _____ Functional Use in Landscape: _____ _____ _____ Basic Characteristics/Growth Habits; e.g., size, form, texture: _____ _____ _____ _____ Special Features; e.g., flowers, leaves, fruit, bark: _____ _____ _____ _____ Suggested Location/Light Requirements; e.g., full sun, partial sun, full shade, partial shade: _____ _____ _____ _____ Care and Handling: _____ _____ _____ _____ Other Notes: _____ _____ _____ _____ _____ _____

Name of Weed

Common Name: _____

Life Cycle; e.g., annual, biennial, perennial: _____

General Description/Growth Habits; e.g., size, form, texture: _____

Basic Identification Characteristics: _____

Preferred Growing Location; e.g., light, moisture, soil: _____

Time of Flowering: _____

Cultural Control Techniques: _____

Herbicidal Control Techniques: _____

Other Notes: _____

Picture or Sketch

Name of Tool, Equipment or Supply
(e.g., hand tool, power tool, materials, supplies)

Item: _____
Manufacturer/Brand: _____

Basic Characteristics/Features; e.g., type, size, composition, structure:

Application in Plant Production or Landscape Service: _____

Directions for Use: _____

Safety Guidelines: _____

Instructions for Maintenance/Storage: _____

Other Notes: _____

Picture or Sketch

**COMPLETE ALL SECTIONS OF THE INFORMATION SHEET FOR HAND/POWER EQUIPMENT AND SUPPLIES
RELEVANT TO THREE AREAS OF PLANT PRODUCTION OR LANDSCAPE SERVICE**

Student Name: _____

Module: Floral Design I Floral Design II Floral Design III

PROJECT:									
DATE:									
Management	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Teamwork	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Construction Techniques	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Safety and Sanitation	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
TOTAL									

STANDARD IS 1 IN FLORAL DESIGN I, 2 IN FLORAL DESIGN II, AND 3 IN FLORAL DESIGN III

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

CSB: 96 06 07

TASK CHECKLIST

The student:

Management

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time in a logical sequence
- ☐ maintains a clean work area
- ☐ attempts to solve problems prior to requesting help
- ☐
- ☐

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication skills
- ☐
- ☐

Construction Techniques

- ☐ selects and uses appropriate tools and floral material
- ☐ interprets and adapts the project plan
- ☐ applies appropriate design principles
- ☐ performs tasks in logical sequence
- ☐ minimizes waste of materials
- ☐
- ☐

Safety and Sanitation

- ☐ handles equipment and materials safely
- ☐ demonstrates concern for safe procedures/ techniques
- ☐ maintains facilities in a sanitary condition
- ☐ sanitizes tools and containers
- ☐ advises of immediate hazards and necessary repairs
- ☐
- ☐

Student Name: _____

Module: AGR103 AGR203(a) AGR203(b) AGR210 AGR303(a) AGR303(b)

PRODUCTION TASK:	Soil Preparation	Cultivation	Propagation/Transplanting	Watering and Fertilizing	Control of Pests/Disease	Harvesting
DATE:						
Management	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Teamwork	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Use of Equipment and Materials	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Production Techniques	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
TOTAL						

STANDARD IS 1 INTRODUCTORY LEVEL MODULES, 2 IN INTERMEDIATE LEVEL MODULES AND 3 IN ADVANCED LEVEL MODULES

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

 Agriculture /G.50
(Interim '1994)

TASK CHECKLIST

The student:

Management

- ☐ prepares self for task
☐ organizes and works in an orderly manner
☐ interprets and carries out instructions accurately
☐ plans and uses time in a logical sequence
☐ maintains a tidy work environment
☐ attempts to solve problems prior to requesting help
☐ maintains records regarding the production cycle

Teamwork

- ☐ cooperates with group members
☐ shares work appropriately among group members
☐ negotiates solutions to problems
☐ displays effective communication skills

Use of Equipment and Materials

- ☐ selects and uses appropriate equipment and materials
☐ handles equipment and materials safely
☐ demonstrates concern for safe procedures/techniques
☐ maintains facilities in a sanitary condition
☐ sanitizes tools and containers
☐ advises of immediate hazards and necessary repairs

Production Techniques

- ☐ performs tasks in a logical sequence
☐ minimizes waste of materials
☐ weighs and measures accurately
☐ utilizes appropriate environmental control and conservation practices

Student Name: _____

Module: Landscape and Turf Management I Landscape and Turf Management II

MAINTENANCE TASK:	Planting/Transplanting	Cultivation/Mulching	Pruning/Mowing/Trimming	Watering/Fertilizing	Pest/Disease Control	Spring/Winter Preparation
DATE:						
Management	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	2
	1	1	1	1	1	1
	0	0	0	0	0	0
Teamwork	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	2
	1	1	1	1	1	1
	0	0	0	0	0	0
Use of Equipment and Materials	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	2
	1	1	1	1	1	1
	0	0	0	0	0	0
Service Techniques	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	2
	1	1	1	1	1	1
	0	0	0	0	0	0
TOTAL						

STANDARD IS 1 IN LANDSCAPE AND TURF MANAGEMENT I AND 2 IN LANDSCAPE AND TURF MANAGEMENT II

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 needs defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

CSB: 96 06 07

Agriculture /G.51
(Interim 1994)

TASK CHECKLIST

The student:

Management

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time in a logical sequence
- ☐ maintains a clean work area
- ☐ attempts to solve problems prior to requesting help
- ☐ maintains records regarding services rendered

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication skills

Use of Equipment and Materials

- ☐ selects and uses appropriate equipment and materials
- ☐ handles equipment and materials safely
- ☐ demonstrates concern for safe procedures/techniques
- ☐ maintains facilities in a sanitary condition
- ☐ utilizes appropriate conservation practices
- ☐ sanitizes tools and containers
- ☐ advises of immediate hazards and necessary repairs

Service Techniques

- ☐ performs tasks in a logical sequence
- ☐ minimizes waste of materials
- ☐ weighs and measures accurately
- ☐ responds to client needs in a professional manner

Student Name: _____

Module: AGR103 AGR202 AGR204 AGR207 AGR210 AGR304 AGR307

TASK:	Feeding	Housing and Bedding	Handling and Restraint	Health and Welfare	Care for Young	Training
DATE:						
Management	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Teamwork	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Use of Equipment and Supplies	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Animal Handling and Care Techniques	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
TOTAL						

STANDARD IS 1 INTRODUCTORY LEVEL MODULES, 2 IN INTERMEDIATE LEVEL MODULES AND 3 IN ADVANCED LEVEL MODULES

Rating Scale:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

TASK CHECKLIST

The student:

Management

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time in a logical sequence
- ☐ maintains a tidy work environment
- ☐ attempts to solve problems prior to requesting help
- ☐ maintains records regarding animal care provided
- ☐

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication skills
- ☐

Use of Equipment and Supplies

- ☐ selects and uses appropriate equipment and supplies
- ☐ handles equipment and supplies safely
- ☐ demonstrates concern for safe procedures/techniques
- ☐ maintains facilities in a sanitary condition
- ☐ sanitizes tools and containers
- ☐ advises of immediate hazards and necessary repairs
- ☐

Animal Handling and Care Techniques

- ☐ performs tasks in a logical sequence
- ☐ demonstrates concern for animal health and welfare
- ☐ minimizes waste of supplies
- ☐ weighs and measures accurately
- ☐ utilizes appropriate environmental control and conservation practices
- ☐

Student Name: _____

Module: _____ AGR106 _____ AGR206 _____ AGR306 _____

PROJECT:									
DATE:									
Management	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Teamwork	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Use of Equipment and Materials	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
Processing Techniques	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0
TOTAL									

STANDARD IS 1 IN INTRODUCTORY LEVEL MODULES, 2 IN INTERMEDIATE LEVEL MODULES AND 3 IN ADVANCED LEVEL MODULES

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not Applicable

CSB: 96 06 07

TASK CHECKLIST

The student:

Management

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time in a logical sequence
- ☐ maintains a tidy work environment
- ☐ attempts to solve problems prior to requesting help
- ☐
- ☐

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ displays effective communication skills
- ☐
- ☐

Use of Equipment and Materials

- ☐ selects and uses appropriate tools and material inputs
- ☐ handles equipment and input materials safely
- ☐ demonstrates concern for safe procedures/techniques
- ☐ maintains facilities in a sanitary condition
- ☐ sanitizes tools and containers
- ☐ advises of immediate hazards and necessary repairs
- ☐
- ☐

Processing Techniques

- ☐ performs tasks in a logical sequence
- ☐ minimizes waste of materials
- ☐ weighs and measures accurately
- ☐ utilizes appropriate environmental control and conservation practices
- ☐
- ☐

LOG/RECORD OF PRODUCTION TASKS: Plant

AGRLOG--PLT

Student Name: _____ Module: _____ Supervisor: _____

Production Task: _____ Date: _____ Time Required to Complete Task: _____ Activity/Task Details _____ _____ Plants/Crops Affected: _____ _____ Environmental Conditions (e.g., indoor/outdoor temperature, light conditions, humidity, air circulation): _____ _____ Equipment and Materials Used: _____ _____ Comments: _____ _____	Production Task: _____ Date: _____ Time Required to Complete Task: _____ Activity/Task Details _____ _____ Plants/Crops Affected: _____ _____ Environmental Conditions (e.g., indoor/outdoor temperature, light conditions, humidity, air circulation): _____ _____ Equipment and Materials Used: _____ _____ Comments: _____ _____
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(Verification by Supervisor) _____
(Date)

STANDARD: The student completes all sections of the log/record for each production task performed.

Student Name: _____ Module: _____ Supervisor: _____

Service Provided: _____ Date: _____ Time Required to Perform Service: _____ Approximate Area of Worksite: _____ Maintenance/Installation Details: _____ Environmental Conditions (e.g., temperature, light conditions, humidity, air circulation): _____ Equipment and Materials Used: _____ Comments: _____ _____ (Client Signature) _____ (Client Phone Number)	Service Provided: _____ Date: _____ Time Required to Perform Service: _____ Approximate Area of Worksite: _____ Maintenance/Installation Details: _____ Environmental Conditions (e.g., temperature, light conditions, humidity, air circulation): _____ Equipment and Materials Used: _____ Comments: _____ _____ (Client Signature) _____ (Client Phone Number)
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_____ (Verification by Supervisor) _____ (Date)

STANDARD: The student completes all sections of the log/record for each service performed.

LOG/RECORD OF ANIMAL CARE

AGRLOG-ANM

Student Name: _____ Module: _____ Supervisor: _____

Animal Care Task: _____ Date: _____ Time Required to Complete Task: _____ Activity/Task Details _____ _____ Environmental Conditions (e.g., indoor/outdoor temperature, light conditions, humidity, air circulation): _____ Status of Animal Health/Welfare (e.g., normal/abnormal signs) _____ Equipment and Supplies Used: _____ Comments: _____	Animal Care Task: _____ Date: _____ Time Required to Complete Task: _____ Activity/Task Details _____ _____ Environmental Conditions (e.g., indoor/outdoor temperature, light conditions, humidity, air circulation): _____ Status of Animal Health/Welfare (e.g., normal/abnormal signs) _____ Equipment and Supplies Used: _____ Comments: _____
--	--

(Verification by Supervisor) _____ (Date) _____

STANDARD: The student completes all sections of the log/record for each animal care task performed.

DESIGN SKETCH (Note: Use simple line drawings. Show colour if it is an element of design.)	DESIGN PRINCIPLES COMPOSITION (i.e., theme, purpose): COLOUR SCHEME: BALANCE AND SYMMETRY: PROPORTION AND SCALE: RHYTHM AND HARMONY: DEPTH AND LINE: TEXTURE AND FOCAL POINT:
FLORAL MATERIAL REQUIRED:	SEQUENCE OF TASKS (i.e., step by step details): 1. 6. 2. 7. 3. 8. 4. 9. 5. 10.
OTHER MATERIAL/SUPPLIES REQUIRED:	
SPECIAL NOTES/CONSIDERATIONS:	

PRICING SCENARIO			
FLORAL PRODUCT: <i>Miniature Carnation Corsage</i>			
Price Range: \$12.00 - \$16.00			
CONSTRUCTION MATERIALS (cost x 2):	WHOLESALE/ COST PRICE	RETAIL/SELLING PRICE	
Wire and Tape	\$.40	\$.80	
FLOWERS (cost x 3):			
3 Pink Miniature Carnations.....	\$.75	\$ 2.25	
4 Yellow Miniature Carnations.....	1.00	3.00	
White Statns.....	.25	.75	
Gypsophila (Baby's Breath).....	.25	.75	
FOLIAGES (cost x 3):			
Sprenger.....	\$.50	\$ 1.50	
ACCESSORIES (cost x 2):			
1/3 yard 7/8" Bluebell Single-Face Satin Ribbon.....	\$.40	\$.80	
1/3 yard #9 Ivory Lace Ribbon.....	.32	.64	
Corsage Bag, Box and Pins	1.00	2.00	
TOTAL MATERIAL COST	4.87	12.49	
LABOUR CHARGE (based on complexity of design, time factor and overhead):			
20% of Retail/Selling Price of Materials & Supplies.....		\$ 2.50	
TOTAL SELLING PRICE		\$ 14.99	
LABOUR TIME:			
Approximately 20 minutes to complete.			
ADDITIONAL INFORMATION:			
Lace ribbon is split in half to create a "scalloped" look. This is combined with satin ribbon to accent a corsage look suitable for a baby shower or many other occasions.			

SAMPLE WORKSHEET			
FLORAL PRODUCT:			
Price Range:			
CONSTRUCTION MATERIALS:	WHOLESALE/ COST PRICE	RETAIL/SELLING PRICE	
	\$	\$	
FLOWERS:			
	\$	\$	
FOLIAGES:			
	\$	\$	
ACCESSORIES:			
	\$	\$	
TOTAL MATERIAL COST			
LABOUR CHARGE (based on complexity of design, time factor and overhead):			
	\$	\$	
TOTAL SELLING PRICE			
LABOUR TIME:			
ADDITIONAL INFORMATION:			

Assessment Criteria and Conditions:

- provides a comprehensive definition of agriculture that encompasses three or more examples of:
 - production operations
 - processing systems and value-added products
 - marketing and distribution systems
 - business and labour providing inputs/services
 - community and government agencies serving agriculture.

Suggested Reference(s):

- *Space Age Agriculture: Land and Life*
- *Agriculture: Land and Life, What is Agriculture?*
- *Agriscience and Technology*.

STANDARD: Address six of the criteria for a definition of agriculture to a minimum standard of **1** on the rating scale

Rating Scale

- 4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
 - 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using more precise terminology. Requires little or no prompting.
 - 2 meets project/task objectives with limited assistance in planning and selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.
 - 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
 - 0 does not complete task, or is unable to provide a suitable response
- N/A Not applicable

CSB: 96 06 07

Background Information	Criteria for a Definition of Agriculture
Obtain copies of <i>Agriculture: Land and Life, What is Agriculture?</i> : • Year One/Module 4 • Year Two/Module 4 • Year Three/Module 4. Each student module is available from the Alberta Distance Learning Centre, and provides information and activities regarding comprehensive agriculture. Each booklet includes sections/topics on: • Agriculture Around Alberta • Out of the Past/Into the Future • Feeding the World.	A comprehensive definition of agriculture should: ☐ incorporate a personal response to agriculture based on experience ☐ distinguish between agriculture production, processing and marketing systems ☐ include public and private agencies/organizations that service and/or support the industry; e.g.: – business and labour inputs/services – supporting community and government agencies ☐ make reference to primary operations traditionally regarded as agriculture (e.g., crop and livestock production), as well as to industry activities that add value to primary commodities (e.g., the agrifoods industry) ☐ make reference to the economic and aesthetic values of horticulture in Alberta communities (e.g., nursery and greenhouse crop production, landscape services) ☐ demonstrate awareness that agriculture is an integral part of Alberta's economy, and is present in both rural and urban communities ☐ relate symbols of agriculture to our culture ☐ ☐ ☐

Assessment Criteria and Conditions:

- given a local agriculture or horticulture enterprise, identify economic and environmental factors that determine its viability

Suggested Reference(s):

- *Agriscience and Technology*
- *Agriscience: Fundamentals and Applications*
- *Space Age Agriculture: Land and Life.*

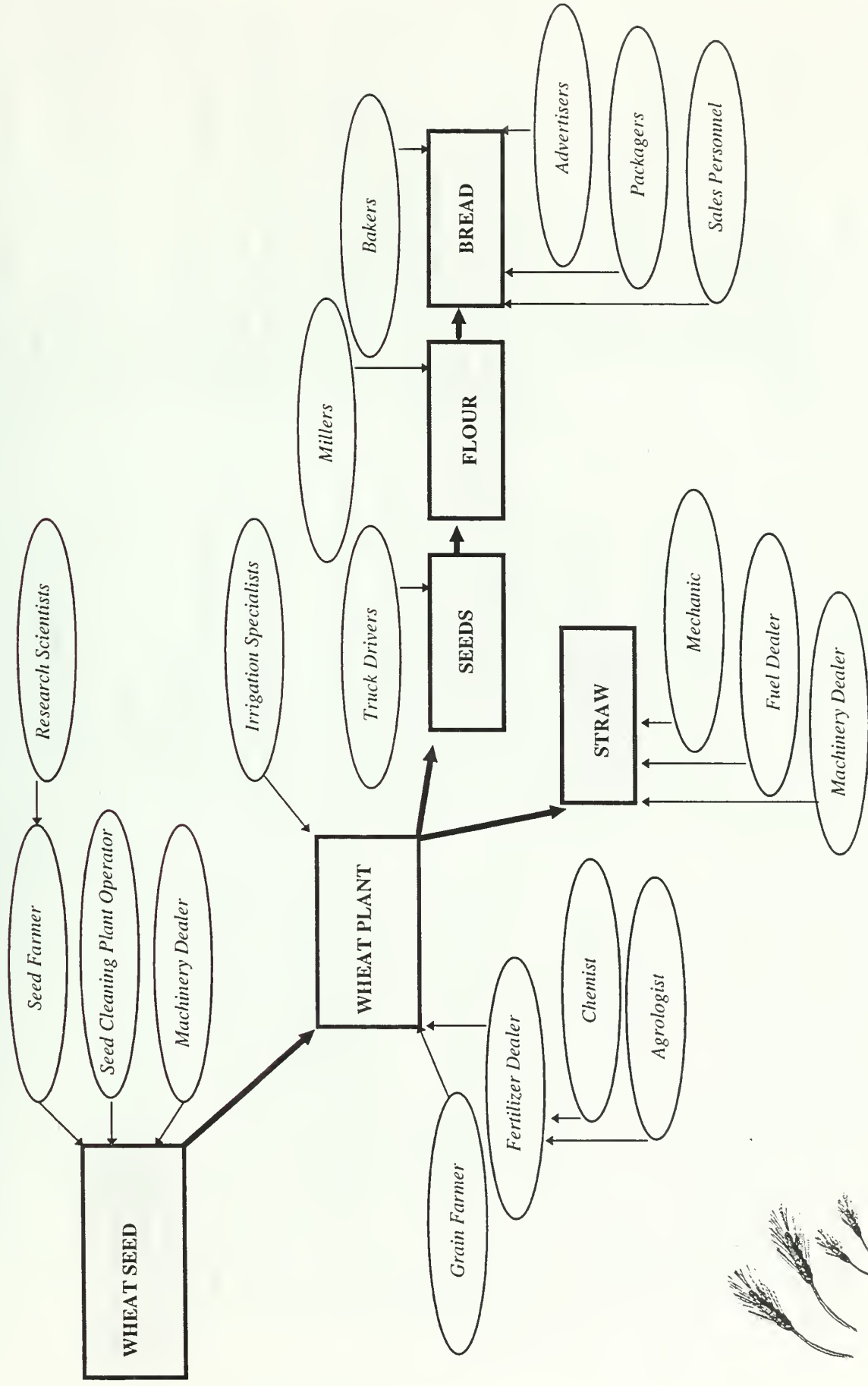
STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

- 4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
 - 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.
 - 2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.
 - 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
 - 0 does not complete task, or is unable to provide a suitable response
- N/A Not applicable

Background Information	Sample Questions/Activities
Contact local industry organizations for information and resources that are specific to an agriculture enterprise. See the Learning Resource Guide (Section I) for a listing of industry contacts. Contact <i>Alberta Agriculture, Food and Rural Development</i> for information regarding the viability of specific agriculture/horticulture ventures.	1. Identify economic factors that determine the viability of an agriculture/horticulture enterprise; e.g.: – market size, access and location – fixed and variable costs – land requirements – labour and transportation needs. 2. Identify environmental factors that determine the viability of an agriculture/horticulture enterprise; e.g.: – climate – soil and water conditions. 3. Explain other factors that may impact the viability of an agriculture/horticulture enterprise; e.g.: – technology requirements – energy requirements. 4. Assess the impact of policy and legislation regarding the use of land, water and air on an agriculture/horticulture enterprise; e.g.: – land zoning/ownership/tenure – water rights – effluent disposal/use of chemicals. 5. Identify sources of materials and services required to support an agriculture/horticulture venture.

AGRICULTURE COMMODITY: WHEAT



TASK	OBSERVATION/RATING			
Preparation and Planning	4	3	2	1 N/A
Information Gathering and Processing	4	3	2	1 N/A
Content	4	3	2	1 N/A
Collaboration and Teamwork	4	3	2	1 N/A
Information Sharing	4	3	2	1 N/A

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST**The student:****Preparation and Planning**

- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing

- ☐ accesses basic school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information in a logical sequence

- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/ opinion/ theory

- ☐ responds to feedback when current approach is not working

Content

- ☐ identifies and describes the nature of an agriculture or horticulture product/service to be marketed
- ☐ describes existing and potential markets for the product/service; e.g.:
 - local
 - national
 - international

Content (continued)

- ☐ explains relevant marketing alternatives for the product/service; e.g.:
 - free market system
 - supply-managed system
 - marketing board
 - cooperatives
- ☐ identifies and describes basic steps in marketing the product/service; e.g.:
 - gathering market information
 - packaging and labelling
 - pricing
 - distribution
 - advertising and sales

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing

- ☐ demonstrates effective use of one or more communication media
e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical convention and technical terms
- ☐ cites 3 or more basic information sources

REFLECTIONS/COMMENTS

Rating	ASSESSMENT CRITERIA
4 3 2 1 0	<i>The student:</i> Scheduling of Tasks ☐ sets goals and follows instructions accurately ☐ identifies major tasks and organizes them into a logical sequence ☐ revises work plan to accommodate changing requirements ☐ uses time effectively
4 3 2 1 0	Information Gathering ☐ poses important questions regarding an existing product or market ☐ gathers background information regarding the product/market using basic in-school/community information sources ☐ uses one or more information-gathering techniques ☐ distinguishes between fact and fiction/opinion/theory
4 3 2 1 0	Product/Market Development ☐ identifies an existing product or market ☐ explains the current status of the product or market; e.g., Who does the existing product/market serve? ☐ outlines plans for altering the product, developing a new/related product, or expanding the market ☐ provides a rationale for product development or market expansion based on social/ethical, economic and personal considerations ☐ develops a strategy for testing the product or surveying the market
4 3 2 1 0	Presenting the Plan ☐ presents product/market plans in a logical sequence ☐ explains basic principles of product/market development ☐ uses correct grammatical convention and technical terms ☐ cites 3 or more relevant information sources ☐ reflects on the strengths/limitations of the plan for product/market development.

STANDARD IS 1 IN EACH APPLICABLE TASK

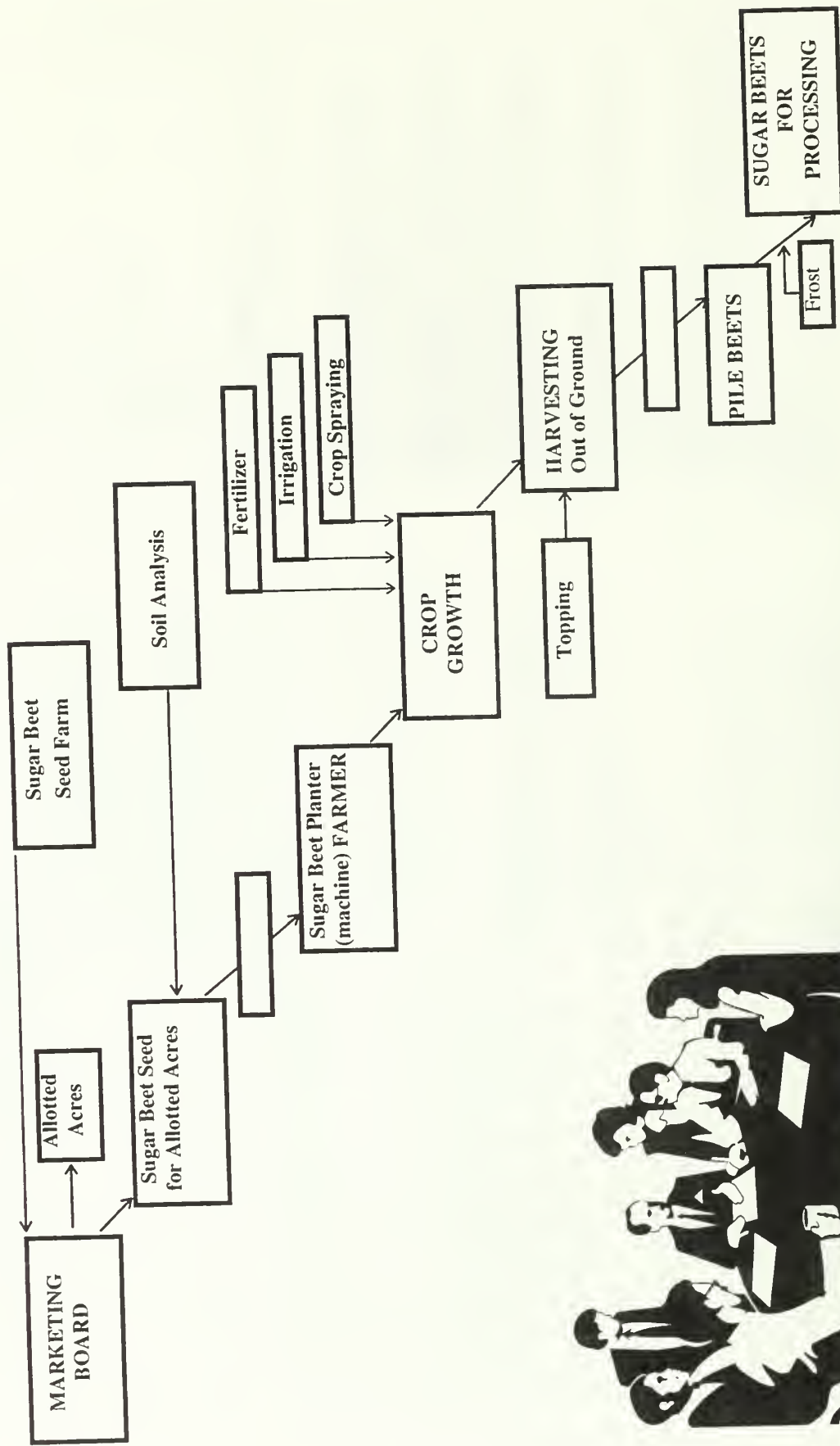
Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

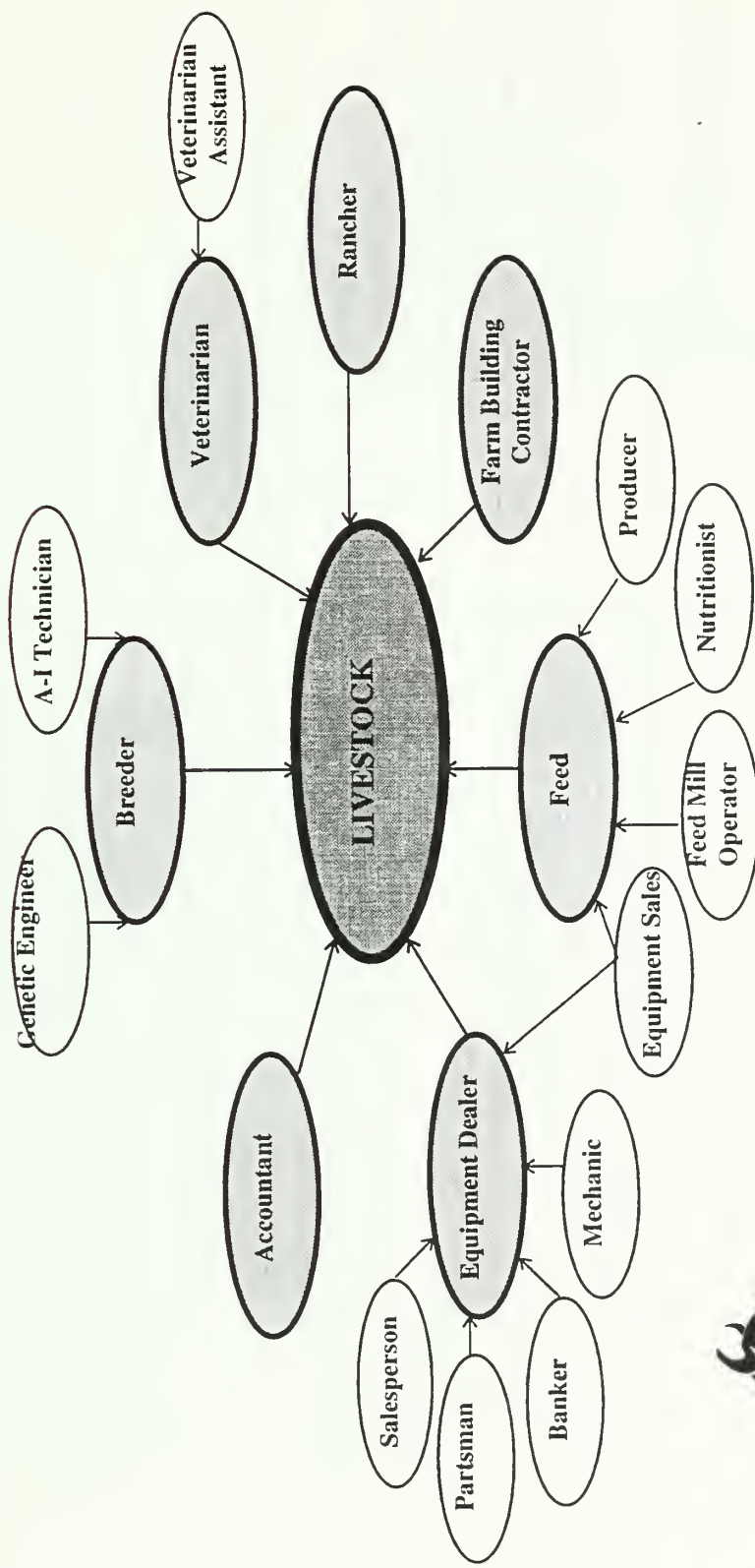
REFLECTIONS/COMMENTS:

SAMPLE FLOW CHART: Production Basics

Agriculture Commodity: Sugar Beets



Agriculture Commodity: Beef



RATING	ASSESSMENT CRITERIA
4 3 2 1 0	<i>The student:</i> Schedules Tasks ☐ defines the task ☐ identifies task components and organizes them into a logical sequence ☐ uses time effectively ☐ Identifies Marketing Components ☐ accesses basic in-school/community information sources regarding the product/service and potential customers/markets ☐ interprets and organizes information into a logical sequence ☐ describes the product/service, customer and target market ☐ assesses commodity supply and/or suitability of product/service suppliers ☐ identifies existing sources of competition within the market place ☐ describes marketing alternative for the product/service; e.g.: – extensive (open) – selective (niche) ☐ describes the pricing strategy based on market analysis and cost factors ☐ describes the packaging/labelling, advertising, promotion and distribution strategy ☐ identifies intended marketing outcomes and/or product/service sales ☐ summarizes opportunities and challenges relevant to the marketing plan ☐ Assesses and Communicates the Marketing Strategy ☐ presents the marketing strategy in a logical sequence using one or more communication media ☐ uses correct grammar and technical terms ☐ assesses the current and potential achievement of marketing goals ☐ make summative statements regarding strengths/weaknesses and general success of the marketing plan ☐

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

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- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

NEED/PROBLEM	RESULTING PRODUCT/PROCESS/SERVICE	CONTRIBUTING RESEARCH/TECHNOLOGY
Foods With Longer Shelf Life		
Higher Yield Grains		
Disease Resistant Plant Varieties		
Leaner Meat		
Management of Animal Wastes		
New Vegetable Varieties		
Longer Lasting Cut Flowers		
Water/Soil Pollution		
High-Fibre Foods		
Low Cholesterol Snacks		
Soil Conservation		

STANDARD: Identify products and technologies developed in response to each of ten problems/needs.

TASK	OBSERVATION/RATING			
Preparation and Planning	4	3	2	1 N/A
Information Gathering and Processing	4	3	2	1 N/A
Content	4	3	2	1 N/A
Collaboration and Teamwork	4	3	2	1 N/A
Information Sharing	4	3	2	1 N/A

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST**The student:****Preparation and Planning**

- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing

- ☐ accesses basic school/community information sources
- ☐ uses one or more information-gathering techniques
- ☐ interprets and organizes information in a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ distinguishes between fact and fiction/opinion/theory
- ☐ responds to feedback when current approach is not working

Content

- ☐ describes the development of one or more technologies currently used in agriculture/horticulture production; e.g.:
 - defines a need/problem
 - explains processes/machines/species developed to address the need
- ☐ explains benefits and costs relevant to applications of the production technology; e.g.:
 - social
 - economic
 - environmental

Content (continued)

- ☐ describes the development of one or more technologies currently used in agriculture/horticulture processing; e.g.:
 - defines a need/problem
 - explains processes/machines/species developed to address the need
- ☐ explains benefits and costs relevant to applications of the processing technology; e.g.:
 - social
 - economic
 - environmental
- ☐ describes the development of one or more technologies currently used in agriculture/horticulture marketing; e.g.:
 - defines a need/problem
 - explains processes/tools developed to address the need
- ☐ explains benefits and costs relevant to applications of the marketing technology; e.g.:
 - social
 - economic
 - environmental

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing

- ☐ demonstrates effective use of one or more communication media
e.g., written, oral, audio-visual
- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical convention and technical terms
- ☐ cites 3 or more basic information sources

REFLECTION/COMMENTS:

Assessment Criteria and Conditions:

- explain three or more practices used in Alberta to manage limited and/or excess water supplies for agriculture

Suggested Reference(s):

- *Agriscience and Technology*
- *Water and Agriculture*
- *Water Management in Alberta*

STANDARD: Respond to a minimum standard of 1 on the rating scale

Rating Scale

- 4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
 - 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.
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 - 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
 - 0 does not complete task, or is unable to provide a suitable response
- N/A Not applicable

Background Information	Sample Questions/Activities
See <i>Agriscience and Technology</i>: • Chapter 7 - Plant Management Technologies • Chapter 17: Protection of Natural Resources. Contact Alberta Environmental Protection for copies of: • <i>Water and Agriculture</i> • <i>Water Management in Alberta</i> • <i>Water in Alberta: The Living Flow</i>. Contact local industry organizations for information and resources on water management that are specific to an agriculture enterprise. See the Learning Resource Guide (Section I) for a listing of industry contacts.	1. Describe the nature and extent of water resources in different regions of Alberta, and their potential to support agriculture. 2. Explain the water cycle and its role in replenishing water supplies. 3. Describe three or more practices used in Alberta to manage limited and/or excess water supplies for agriculture; e.g.: – irrigation, storage, conservation practices – diversion, drainage, flood control. 4. Cite two or more examples of legislation used in Alberta to manage water resources for agriculture; e.g.: – water rights – pollution control. 5. Propose strategies for managing water within a specific rural, urban and/or indoor agriculture environment. 6. Prepare a glossary of terms relevant to water management in Alberta.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
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- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST**The student:****Preparation and Planning**

- ☐ sets goals and follows instructions accurately
- ☐ adheres to established timelines
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ uses time effectively

Information Gathering and Processing

- ☐ accesses basic school/community information sources
- ☐ uses one or more information-gathering techniques

- ☐ interprets and organizes information in a logical sequence

- ☐ records information accurately using correct technical terms

- ☐ distinguishes between fact and fiction/opinion/theory

- ☐ responds to feedback when current approach is not working

Content

- ☐ provides examples of five rural land uses and factors involved in making each land use decision
- ☐ provides examples of five urban land uses and factors involved in making each land use decision

Content (continued)

- ☐ defines and gives examples of multiple land use in Alberta

- ☐ given a specific rural or urban land site, identifies:
 - alternatives regarding its use
 - benefits/costs relevant to each alternative

- ☐ develops goals, a plan and a rationale for the use of a specific rural or urban land site

- ☐ constructs a diagram/model that illustrates land use planning principles relevant to the site

- ☐

- ☐

- ☐

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members

Information Sharing

- ☐ demonstrates effective use of one or more communication media

e.g., written, oral, audio-visual

- ☐ communicates information in a logical sequence
- ☐ uses correct grammatical convention and technical terms

- ☐ cites 3 or more basic information sources

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

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 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and follows instructions accurately
- ☐ responds to directed questions and follows necessary steps to find answers
- ☐ accesses basic in-school/community information sources
- ☐ interprets and organizes information into a logical sequence
- ☐ records information accurately using correct technical terms
- ☐ uses time effectively.

Content

- ☐ provides a clear and concise statement of an issue regarding water, soil or land use
- ☐ examines social, political, scientific, ethical, economic and/or environmental perspectives related to the issue
- ☐ provides detailed examples of the consequences of previous human activities relevant to the issue
- ☐ develops a logical argument and conclusion regarding the issue, and provides a rationale for the position taken.

Content (continued)

- ☐ develops a plan of action for dealing with the issue at local and/or global levels
- ☐ provides a glossary of terms relevant to the issue.
- ☐

Presenting/Reporting

- ☐ demonstrates effective use of one or more communication media
e.g., Written: spelling, punctuation, grammar basic format
Oral: voice projection, body language
Audio-Visual: techniques, tools
- ☐ uses correct grammatical convention and technical terms through proof-reading/editing
- ☐ provides an introduction that describes the purpose of the project
- ☐ communicates information in a logical sequence
- ☐ states a conclusion based on a summary of facts
- ☐ provides a reference list of 3 or more basic information sources.

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

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- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing

- ☐ accesses a range of relevant in-school/community resources

- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content

- ☐ identifies and describes indicators of health in a selected animal species; e.g.:
 - physical signs
 - normal/abnormal vital signs
 - symptoms of disease and parasites
 - behaviour

Content (continued)

- ☐ describes normal/abnormal animal physiology and anatomy
- ☐ describes normal/abnormal feed sources, and the impact of nutrient deficiencies on animal health
- ☐ identifies agents and sources of stress for animals, and their implications for health
- ☐ describes characteristics of a healthful animal environment, and conditions that may place an animal's health or safety at risk; e.g.:
 - sanitation
 - housing
 - methods of restraint

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing

- ☐ demonstrates effective use of two or more communication media
e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites 5 or more relevant information sources

REFLECTIONS/COMMENTS:

STANDARD: Achieve a minimum performance rating of 2 in all areas of animal care as outlined on the checklist.

Rating Scale

- 4** exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3** meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2** meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1** meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0** has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

FEEDING	HANDLING AND RESTRAINT
<i>The student:</i> ☐ describes the role of protein, energy, vitamins, mineral and water in animal diet ☐ monitors animals and pens for adequate water supply/consumption and ensures animals are properly watered ☐ implements and monitors an appropriate feeding routine ☐ explains rules of thumb for quantities/volumes consumed daily or weekly ☐ identifies feed requirements for specific situations (e.g., growth/fattening, pregnant/lactating mothers) ☐ feeds at correct times ☐ operates required feeding equipment ☐ performs routine health checks during feeding ☐ performs routine inspection/cleaning/maintenance of feed boxes and troughs during feeding ☐ identifies nutritional deficiencies, and explains the role of food additives and growth stimulants in animal diet	<i>The student:</i> ☐ describes normal animal behaviours in different situations (e.g., when eating, when confined, during breeding) ☐ identifies factors that influence animal handling techniques (e.g., animal instincts, environmental factors, tameness, breed/gender/age differences) ☐ demonstrates effective animal handling technique (e.g., body stance/movement, appropriate use of force, control of noise) ☐ uses animal handling aids/facilities in a proper and safe manner (e.g., prods, canes, whistles, chutes, pens, gates) ☐ uses animal restraint equipment in a proper and safe manner (e.g., cattle squeeze, hog crate, head gate) ☐ demonstrates ability to handle animals in groups and/or in large areas (e.g., herding, droving, moving) ☐ demonstrates techniques that minimize personal hazards associated with animal handling (e.g., protective gear, keeping alert)
HOUSING/BEDDING	HEALTH AND WELFARE
<i>The student:</i> ☐ demonstrates appropriate and safe use of confinement structures (e.g., buildings, fences, corrals) ☐ monitors physical environment, ensuring appropriate light, temperature, air circulation and space variables ☐ maintains and makes basic repairs to fencing and/or confinement structures to ensure animal safety ☐ cleans and disinfects animal pens and other confinement/holding structures ☐ ensures animal comfort through supply of appropriate bedding material ☐ implements and maintains a manure handling system	<i>The student:</i> ☐ describes signs of animal health (e.g., movement, alertness, body appearance, eating habits) ☐ identifies symptoms of ill health, parasites and/or disease (e.g., respiration, movement, eating habits, body appearance, animal sounds) ☐ identifies symptoms and treatments for common pests, diseases and ailments that affect the health of animals within the industry ☐ identifies common situations that may be confused with ill health (e.g., heat/cold, estrus cycle, stress) ☐ administers basic treatments for common pests, diseases and/or ailments (e.g., injections, dusting) ☐ identifies and controls agents/sources of stress for the animal

RATING	ASSESSMENT CRITERIA
	<i>The student:</i>
4	Gathers Background Information
3	☐ defines the task
2	☐ identifies task components and organizes them into a logical sequence
1	☐ accesses basic in-school/community information sources regarding animal welfare
0	☐ provides a review of historical concerns regarding animal welfare
	☐ compares animal welfare and animal rights
	☐
4	Develops a Strategy for Maintaining Animal Welfare
3	☐ identifies ethical, economic and social perspectives that influence animal welfare
2	☐ describes welfare needs of an animal; e.g.:
1	– water and food
0	– space, air quality, temperature and light
	– shelter and confinement structures
	– freedom from stress, hunger, disease, pain and abuse
	☐ describes indicators of health in the animal; e.g.:
	– physical signs of good and poor health
	– normal and abnormal vital signs
	– symptoms of disease and parasites
	– normal and abnormal behaviour
	☐ describes current codes of practice regarding animal care, handling and restraint
	☐ considers alternatives and consequences regarding different approaches to caring for the animal
	☐ develops a plan of action to address welfare needs of the animal
	☐
4	Assesses and Communicates the Strategy
3	☐ presents the animal welfare plan in a logical sequence using one or more communication media
2	☐ uses correct grammar and technical terms
1	☐ make summative statements regarding strengths/weaknesses and general feasibility of the animal welfare plan
0	☐ outlines a protocol for responding to an issue regarding animal welfare
	☐

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

TASK CHECKLIST: Field Crops I

AGR203(a)-1

PRODUCTION TASK	Soil Preparation	Seeding/ Propagation	Crop Cultivation	Irrigation	Fertilizing	Pest/Weed/Disease Control	Harvesting
<i>The student:</i>							
A. performs routine checks on condition of crop plants/ growth medium to determine crop production requirements	☐	☐	☐	☐	☐	☐	☐
B. selects, assembles and calibrates/adjusts appropriate equipment and/or materials as necessary to perform the production task	☐	☐	☐	☐	☐	☐	☐
C. performs the production task by following established procedures and using equipment/materials in an efficient manner	☐	☐	☐	☐	☐	☐	☐
D. follows established guidelines for the safe use of hand and power equipment in performing crop production tasks*	☐	☐	☐	☐	☐	☐	☐
E. disassembles, cleans and/or stores equipment and/or materials used in the course of performing the production task	☐	☐	☐	☐	☐	☐	☐
F. performs routine safety checks on hand and power equipment, and cleans/ sharpens/lubricates/adjusts as required	☐	☐	☐	☐	☐	☐	☐
G. demonstrates effective conservation practices and regard for the environment throughout crop production cycle	☐	☐	☐	☐	☐	☐	☐

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

• STANDARD IS 2 FOR TASKS A, B, C, E, F AND G IN EACH OF TWO AREAS OF CROP PRODUCTION

* STANDARD IS 3 FOR TASK D (SAFE USE OF HAND AND POWER EQUIPMENT)

SOIL PREPARATION (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	identifies major soil components
☐	selects an appropriate growing medium
☐	moistens growing medium as necessary
☐	evenly mixes growing medium given a recipe materials
☐	identifies and safely uses appropriate tools and equipment
☐	

CULTIVATION (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	removes weeds and other debris
☐	adds/mixes amendments as required
☐	smooths soil for planting and/or rough digs for winter preparation
☐	identifies and safely uses appropriate tools and equipment
☐	

PROPAGATION (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	identifies basic germination requirements
☐	germinates seeds using row, broadcast or plug patterns
☐	performs stem cuttings of different plants (e.g., hardwood, softwood)
☐	performs simple leaf cuttings
☐	performs simple division
☐	identifies and safely uses appropriate tools and equipment
☐	
☐	

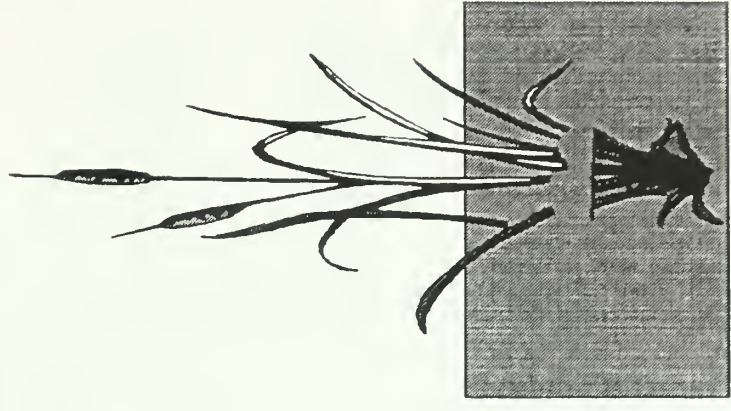
TRANSPLANTING (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	identifies plant material in need of transplanting
☐	transplants rooted seedlings and cuttings

TRANSPLANTING (continued)	
☐	repots pot-bound plants to containers of appropriate size
☐	identifies and safely uses appropriate tools and equipment
☐	
☐	

WATERING AND FERTILIZING (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	checks growing medium for moisture content
☐	applies moisture to plants as required
☐	identifies fertilizer components and function
☐	mixes and applies fertilizer as required
☐	identifies and safely uses appropriate tools and equipment
☐	

CONTROL OF PESTS AND DISEASE (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
☐	recognizes common plant pests/diseases and their symptoms: ☐ aphid ☐ fungus gnat ☐ mealy bug ☐ spider mite ☐ scales ☐ damping-off ☐ botrytis
☐	performs preventative measures for common plant pests and diseases
☐	performs eradication procedures for common plant pests and diseases
☐	uses non-toxic and safe materials
☐	identifies and safely uses appropriate tools and equipment
☐	
☐	

Rating Scale	
4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
REFLECTIONS/COMMENTS	



IDENTIFICATION GUIDE: Basic Anatomy and Physiology

AGR204-1

HEAD AND NECK AREAS	Name of Structure	Basic Function
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

LEG AND FOOT AREAS	Name of Structure	Basic Function
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

BODY	Name of Structure	Basic Function
Basic Skeletal Structure:	☐	☐
	☐	☐
	☐	☐
	☐	☐
Digestive System:	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
Respiratory System:	☐	☐
	☐	☐
	☐	☐
	☐	☐
Mammary/Reproductive System:	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

STANDARD: Identify by name and function 15 basic structural parts of particular importance in the production system. Structural parts to include those located in the head/neck, body and leg/foot areas.

REFERENCE GUIDE: *Skill Training Profiles, Alberta Green Certificate Training Program*

Assessment Criteria and Conditions:

- explain vital life processes of respiration, digestion, excretion, growth and reproduction for a livestock species, and the significance of each in the production system

Suggested Reference(s):

- *Agriscience: Fundamentals and Applications*
- *Alberta Green Certificate Skill Profiles and Performance Standards*

STANDARD : Respond to a minimum standard of 2 on the rating scale

Rating Scale

- 4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
 - 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.
 - 2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.
 - 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
 - 0 does not complete task, or is unable to provide a suitable response
- N/A Not applicable

Background Information	Sample Questions/Activities
See <i>Agriscience: Fundamentals and Applications</i>, Section 8 - Animal Sciences. See <i>Alberta Green Certificate Skill Profiles and Performance Standards</i> for: • Beef • Dairy • Cow-Calf • Sheep • Swine. Contact local industry organizations for information and resources specific to a livestock species. See the Learning Resource Guide (Section I) for a listing of industry contacts.	1. Explain vital life processes and terminology related to: - respiration - digestion - waste excretion - growth - reproduction. 2. For a specific animal species, draw, label and explain the functions of structures within the: - respiratory system - digestive system - reproductive system. 3. Compare the digestive systems of ruminants, nonruminants and poultry. Note the parts that are alike and those that are different. 4. Explain the significance of animal physiology and related structures within a particular species to the production system; e.g.: - cattle and sheep have rumens which enable them to digest grass and crop wastes - milk production is dependent on the udder of a dairy cow - muscling for meat production is important in beef, hog and poultry.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing

- ☐ accesses a range of relevant in-school/community resources

- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content

- ☐ identifies and describes common classes and breeds of a livestock, poultry or speciality animal
- ☐ identifies positive and negative genetic traits of a livestock, poultry or speciality animal

Content (continued)

- ☐ identifies breeds of livestock, poultry or speciality animals suited to specific production and/or market applications
- ☐ explains principles of heredity and how animal characteristics are passed from generation to generation; e.g.:
 - dominant and recessive traits
 - selection criteria and procedures
- ☐ outlines record keeping systems for animal ancestry and history, and procedures used to maintain quality of the animal breed; e.g.:
 - pedigrees, breeding records, parturition records
 - breed standards, showing and judging systems

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing

- ☐ demonstrates effective use of two or more communication media:
 - e.g., *written, oral, audio-visual*
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites five or more relevant information sources.

REFLECTIONS/COMMENTS:

STANDARD IS 2 FOR THE ANIMAL CARE TASKS LISTED IN TWO AREAS OF ANIMAL PRODUCTION

Rating Scale

FEEDING <i>The student:</i> ☐ monitors animals and pens for adequate water supply/consumption and ensures animals are properly watered ☐ selects correct ration and quantity of food for animal ☐ explains rules of thumb for quantities/volumes consumed daily or weekly ☐ feeds at correct times ☐ operates required feeding equipment ☐ performs routine health checks during feeding ☐ performs routine inspection/cleaning/maintenance of feed boxes and troughs during feeding	HANDLING AND RESTRAINT <i>The student:</i> ☐ demonstrates effective animal handling technique (e.g., body stance/movement, appropriate use of force, control of noise) ☐ uses animal handling aids in a proper and safe manner (e.g., prods, whips, canes) ☐ uses animal handling facilities in a proper and safe manner (e.g., chutes, pens, gates) ☐ uses animal restraint equipment in a proper and safe manner (e.g., cattle squeeze, hog crate, head gate) ☐ demonstrates ability to handle animals in groups and/or in large areas (e.g., herding, droving, moving)
HOUSING/BEDDING <i>The student:</i> ☐ monitors physical environment, ensuring appropriate light, temperature, air circulation and space variables ☐ provides appropriate fencing and shelter to ensure animal safety ☐ cleans and disinfects trailers, pens and other animal holding structures ☐ ensures animal comfort through supply of bedding material	CARE FOR YOUNG <i>The student:</i> ☐ demonstrates appropriate technique to catch/hold baby animals ☐ cleans new born animals ☐ assists new born animals to nurse
HEALTH AND WELFARE <i>The student:</i> ☐ identifies basic symptoms of ill health/disorders in: – respiration – movement – eating habits – physical appearance (e.g., stomach, coat, eyes, ears) – sounds – manure and urine analysis ☐ identifies symptoms and treatments for common pests, diseases and ailments that affect the health of animals within the industry ☐ administers basic treatments for common pests, diseases and/or ailments (e.g., injections, dusting)	OTHER <i>The student:</i> ☐

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK	OBSERVATION/RATING				
Allocating Time and Materials	4	3	2	1	0
Profiling the Industry	4	3	2	1	0
Presenting and Critiquing	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST	
<i>The student:</i>	
Allocating Time and Materials ☐ develops and follows a schedule of activities for preparing an agrifoods portfolio ☐ uses personal initiative to formulate questions and find answers ☐ accesses a range of relevant in-school and community resources ☐ interprets, organizes and combines information into a logical sequence ☐ records information accurately using appropriate technical terms and supporting detail ☐ selects and uses appropriate equipment/materials ☐ plans and uses time effectively ☐ assesses and refines approach to task and project status based on feedback and reflection	Profiling the Industry (continued) ☐ explains quality control techniques, including methods used to inspect raw materials and test product quality and uniformity ☐ demonstrates one or more methods of preserving a perishable product; e.g.: – blanching and canning – dehydration and freeze-drying – fermentation – refrigeration and freezing – atmosphere control (vacuum seal, carbon dioxide seal) ☐ explains systems used to package, grade and label products within the industry ☐ identifies safety and environmental standards that influence industry operations ☐ develops a glossary of terms characteristic of the agrifood industry
Presenting and Critiquing ☐ demonstrates effective use of two or more communication media in presenting the portfolio: e.g., <i>written, oral, audio-visual</i> ☐ communicates ideas in a logical sequence with sufficient supporting detail ☐ maintains acceptable grammatical and technical standards ☐ provides an introduction that describes the purpose and scope of the portfolio ☐ relates final outcomes and products to original purpose, identifying strengths and areas for improvement ☐ cites five or more relevant information sources	
Profiling the Industry ☐ constructs flowcharts/diagrams that explain the stages and steps in processing the commodity and developing the value-added product or service ☐ constructs models/drawings of technological systems used in transportation, storage and processing ☐ assesses the benefits/costs of technological systems used and potential advantages of alternative technologies ☐ assesses the impact of transportation and storage requirements on industry location	
REFLECTIONS/COMMENTS	

- 1 Identify personal safety equipment that you must always wear when operating power landscape maintenance machines.
Steel toed boots, long pants, gloves, ear protection
2. Name two additional pieces safety equipment that may be required and identify the power machine(s) you must use it with.
Eye protection – goggles, gloves, helmet, respiratory protection
3. Describe the correct procedure for stopping any power machine and tell why this procedure is necessary.
Stop machine – remove spark plug attachment. Machine will not restart accidentally.
4. What must you know about a power machine before you start it?
How to stop/shut off.
5. Some machines require a large operating distance. Name two such machines and explain why this distance is necessary.
Machines that throw plant material – power edges, trimmers, mowers
6. Explain how you would respond in each of the following situations:
 - a) your engine runs out of fuel half-way through a job
Turn off machine, remove spark plug attachment, give 10-15 minute cool-down period, refuel.
 - b) you are mowing grass and the grass is no longer being pulled into the bag because the bag is full
Turn off machine, remove spark plug, remove bag, clean grass from under mower.
 - c) a friend approaches you during the course of operating a power trimmer.
Turn off the machine immediately.

STANDARD: Correct response to all items prior to operation of power maintenance equipment.

TASK CHECKLIST: Landscape and Turf Management I

AGR206-2

MAINTENANCE TASK <i>The student:</i>	Watering of Plants and/or Turf	Cultivation and Mulching of Plants	Corrective Pruning of Plants	Mowing, Trimming and Edging of Turfgrass	Control of Pests/Disease	Installation/ Removal of Plant Material
	☐	☐	☐	☐	☐	☐
A. performs routine checks on plants/ growth medium to determine the need for service	☐	☐	☐	☐	☐	☐
B. selects, assembles and calibrates appropriate equipment and/or materials as necessary to perform the maintenance service	☐	☐	☐	☐	☐	☐
C. performs the maintenance service by safely following established procedures	☐	☐	☐	☐	☐	☐
D. follows established guidelines for the safe use of hand and power equipment relevant to the service*	☐	☐	☐	☐	☐	☐
E. disassembles, cleans and/or stores equipment and/or materials used in the course of performing the service	☐	☐	☐	☐	☐	☐
F. demonstrates effective conservation practices and regard for the environment in providing the service	☐	☐	☐	☐	☐	☐

Rating Scale

- STANDARD IS 1 FOR TASKS A, B, C, E, AND F IN EACH OF THREE AREAS OF LANDSCAPE/TURFGRASS SERVICE
- * STANDARD IS 3 FOR TASK D (SAFE USE OF HAND AND POWER EQUIPMENT)
- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0 N/A
Information Gathering and Processing	4	3	2	1	0 N/A
Content	4	3	2	1	0 N/A
Collaboration and Teamwork	4	3	2	1	0 N/A
Information Sharing	4	3	2	1	0 N/A

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and establishes steps to achieve them
- ☐ creates and adheres to useful timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively

Information Gathering and Processing

- ☐ accesses a range of relevant in-school/community resources
- ☐ uses a range of information-gathering techniques
- ☐ interprets, organizes and combines information into a logical sequence
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ determines accuracy/currency/reliability of information sources
- ☐ gathers and responds to feedback regarding approach to the task

Content

- ☐ identifies and describes different types of benefits associated with horses; e.g.:
 - pleasure
 - companionship
 - performance
 - breeding

Content (continued)

- ☐ describes the origin and history of horses, and factors that led to their domestication
- ☐ describes the characteristics and functions of major anatomical structures of the horse
- ☐ explains major body systems, processes and related terminology; e.g.:
 - respiration
 - digestion
 - waste excretion
 - growth
 - reproduction
- ☐ identifies and describes selected types and breeds of horses
- ☐ identifies horse breeds that are suited to specific applications

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Information Sharing

- ☐ demonstrates effective use of two or more communication media
e.g., written, oral, audio-visual
- ☐ communicates ideas in a logical sequence with sufficient supporting detail
- ☐ maintains acceptable grammatical and technical standards
- ☐ cites 5 or more relevant information sources

REFLECTIONS/COMMENTS:

TASK CHECKLIST: Pets and Equine I

AGR207-2

STANDARD: Achieve a minimum performance rating of 2 for the tasks listed in two areas of animal care.

Rating Scale

4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

FEEDING <i>The student:</i> ☐ monitors animals and pens for adequate water supply and consumption ☐ selects correct ration and quantity of food for animal ☐ explains rules of thumb for quantities/volumes consumed daily or weekly ☐ feeds at correct times ☐ operates required feeding equipment ☐ performs routine health checks during feeding ☐ performs routine inspection/cleaning/maintenance of feed boxes and troughs during feeding	HANDLING AND RESTRAINT <i>The student:</i> ☐ demonstrates effective animal handling technique (c.g., body stance/movement, appropriate use of force, control of noise) ☐ uses animal handling aids in a proper and safe manner (e.g., prods, canes, whistle) ☐ uses animal handling facilities in a proper and safe manner (e.g., chutes, pens, gates) ☐ uses animal restraint equipment in a proper and safe manner ☐ demonstrates ability to handle animals in groups and/or in large areas (e.g., herding, droving, moving)
HOUSING/BEDDING <i>The student:</i> ☐ monitors physical environment, ensuring appropriate light, temperature, air circulation and space variables ☐ provides appropriate fencing and shelter to ensure animal safety ☐ cleans and disinfects trailers, pens and other animal holding structures ☐ ensures animal comfort through supply of bedding material	CARE FOR YOUNG <i>The student:</i> ☐ demonstrates appropriate technique to catch/hold baby animals ☐ cleans new born animals ☐ assists new born animals to nurse
HEALTH AND WELFARE <i>The student:</i> ☐ identifies basic symptoms of ill health/disorders in: – respiration – movement – eating habits – physical appearance (e.g., stomach, coat, eyes, ears) – sounds – manure and urine analysis ☐ identifies symptoms and treatments for common pests, diseases and ailments that affect the health of animals within the industry ☐ administers basic treatments for common pests, diseases and/or ailments (e.g., injections, dusting)	OTHER <i>The student:</i> ☐

CONDITIONING FRESH CUT FLOWERS AND GREENERY (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	unpacks incoming stock and inspects for disorders/irregularities
☐	prepares containers for incoming stock
☐	mixes preservatives
☐	uses correct water temperature to condition materials
☐	cuts stems under water
☐	cuts stems to correct length
☐	stores materials at correct temperature
☐	incorporates recutting of stems and replacement of solutions as part of regular work routine
☐	handles and cleans emergency spills, and maintains facilities in a sanitary condition
☐	
☐	
☐	

HANDLING DRIED AND FABRIC FLOWERS AND GREENERY (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	bundles materials correctly
☐	hangs/boxes materials in a manner that prevents breaking, soiling and fading
☐	organizes materials in an effective manner
☐	
☐	

PACKAGING CUT FLOWERS, INTERIOR PLANTS AND FLORAL ARRANGEMENTS (continued)	
☐	includes care tags, preservatives, etc., in packaging
☐	keeps packaging neat and clean in appearance
☐	performs tasks in order of priority
☐	
☐	

PACKAGING CUT FLOWERS, INTERIOR PLANTS AND FLORAL ARRANGEMENTS (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	packages materials to protect, stabilize and preserve during transport
☐	packages materials without causing damage to floral stock
☐	packages materials to withstand adverse weather conditions

USING CONSTRUCTION MATERIALS (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐	ties floral bows using ribbons of different width
☐	wraps wires of different gauge using floral tape
☐	
☐	

CONSTRUCTING FLORAL ARRANGEMENTS (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)	
<i>The student:</i>	
☐ follows and implements a plan for constructing a single bud vase	
☐ follows and implements a plan for constructing a triple bud vase	
☐ follows and implements a plan for constructing a single boutonniere	
☐ follows and implements a plan for constructing a triple corsage	
☐ follows and implements a plan for constructing a rose bowl	
☐ follows and implements a plan for constructing a simple mound arrangement	
☐ follows and implements a plan for constructing a triangle arrangement of a dozen roses	
☐	
☐	
☐	

**STANDARD IS 1 IN EACH APPLICABLE TASK
AREA**
Rating Scale

- 4** exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3** meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2** meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1** meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0** has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

PROJECT STANDARDS	PROJECT: Single Bud Vase	PROJECT: Triple Bud Vase	PROJECT: Single Boutonniere	PROJECT: Triple Corsage	PROJECT: Rose Bowl	PROJECT: Mound Arrangement	PROJECT: Triangle Arrangement
Application of Design Principles • colour scheme is appropriate • composition and arrangement are correct • balance and symmetry are achieved • proportion and scale are evident	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐
Quality of Workmanship • materials used were appropriate and consistent with design concept • secure in construction and finished on all sides • construction is concealed • all floral materials placed at proper height, depth and/or angle • wrapping is smooth, snug and tight • performs check on final product for quality, quantity and/or appeal	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐
PROJECT RATING							

STANDARD IS 1 IN EACH APPLICABLE TASK AREA

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

RATING	ASSESSMENT CRITERIA
	<i>The student:</i>
4	Schedule Tasks
3	☐ defines the task
2	☐ sets goals and establishes steps to achieve them
1	☐ plans and uses time effectively
0	☐
4	Gather Relevant Information
3	☐ poses important questions regarding a new (or altered) product/service
2	☐ accesses a range of relevant in-school/community resources
1	☐ interprets, organizes and combines information into a logical sequence
0	☐ determines accuracy/currency/reliability of information sources
	☐
4	Develop the Plan
3	☐ designs and conducts a survey of consumer preferences for a new (or altered) product/service
2	☐ develops/packages/labels the product/service to address consumer preferences
1	☐ identifies local, national and/or international markets for the product/service
0	☐ establishes a viable marketing alternative(s) for the product/service; e.g.: – extensive (open) – selective (niche)
	☐ establishes one or more strategies for promoting the product/service; e.g.: – advertising through the media – in-store samples/displays – trade shows
	☐ summarizes opportunities and challenges relevant to the product and markets
	☐
4	Present and Assess the Plan
3	☐ presents the plan in a logical sequence using two or more communication media:
2	– market conditions that led to product development
1	– steps involved in product development
	– recommended marketing alternatives and promotional strategies
0	☐ uses correct grammatical convention and technical terms
	☐ makes summative statements regarding strengths/weaknesses and general feasibility of the plan for product and market development
	☐

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

TASK CHECKLIST: Controlled Growing Environments

AGR210-1

PRODUCTION TASK	Temperature/ Humidity Control	Ventilation	Lighting/Shade Control	Use of Watering Systems	Use of Feeding Systems	Pest/Disease Control	Waste Disposal
<i>The student:</i>							
A. performs routine checks on crop/livestock to determine production requirements	☐	☐	☐	☐	☐	☐	☐
B. selects, assembles and adjusts appropriate equipment and/or materials as necessary to perform production tasks	☐	☐	☐	☐	☐	☐	☐
C. performs production tasks by following established procedures and using equipment/materials in an efficient manner	☐	☐	☐	☐	☐	☐	☐
D. follows established guidelines for the safe use of hand and power equipment in performing production tasks*	☐	☐	☐	☐	☐	☐	☐
E. sanitizes the growing/living environment and disassembles/cleans/stores equipment and materials used in the course of performing production tasks	☐	☐	☐	☐	☐	☐	☐
F. demonstrates effective conservation practices and regard for the environment throughout the crop/livestock production cycle	☐	☐	☐	☐	☐	☐	☐

- STANDARD IS 2 FOR TASKS A, B, C, E, AND F IN ALL OF THE IDENTIFIED AREAS OF ENVIRONMENTAL CONTROL/MANAGEMENT

* STANDARD IS 3 FOR TASK D (SAFE USE OF HAND AND POWER EQUIPMENT)

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST**The student:****Management**

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time effectively
- ☐ adheres to routines/procedures

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Use of Equipment and Materials

- ☐ selects and uses appropriate equipment/materials
- ☐ models safe procedures/techniques
- ☐ weighs and measures accurately
- ☐ practises proper sanitation procedures
- ☐ minimizes waste of materials
- ☐ advises of potential hazards and necessary repairs

Investigative Techniques

- ☐ gathers and applies information from a variety of sources
- ☐ describes the general characteristics of each horizon in a soil profile
- ☐ describes the parent materials for soil in each horizon, how it was formed, and how the soil changed over time

Investigative Techniques (continued)

- ☐ describes the influence of the five soil forming factors on soil formation within each horizon; e.g.:
 - climate
 - living organisms
 - parent materials
 - topography
 - time
- ☐ relates the thickness of each horizon to drainage, vegetation and climatic factors
- ☐ identifies the fundamental components of soil and explains the relationship of each to soil productivity; i.e.:
 - minerals
 - organic matter
 - air
 - water
- ☐ identifies and locates soil zones of Alberta, and the characteristics of soils within each zone; i.e.:
 - grey
 - black
 - dark brown
 - brown
- ☐ observes relationships between vegetation type and soil characteristics on vegetation and soil zone maps of the prairies; i.e.:
 - Grassland
 - Aspen Parkland
 - Forest
 - Mixed Forest and Tundra

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST**The student:****Management**

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time effectively
- ☐ adheres to routine procedures

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Use of Equipment and Materials

- ☐ selects and uses appropriate equipment/materials
- ☐ models safe procedures/techniques
- ☐ weighs and measures accurately
- ☐ practises proper sanitation procedures
- ☐ minimizes waste of materials
- ☐ advises of potential hazards and necessary repairs

Investigative Techniques

- ☐ gathers and applies information from a variety of sources
- ☐ identifies the three soil separates (i.e., sand, silt, clay) and describes the characteristics of each as they relate to the soil's:
 - suitability for plant growth
 - potential for erosion
 - ease of handling

Investigative Techniques (continued)

- ☐ manually estimates the relative percentages of sand, silt and clay in a soil sample; e.g.:
 - dry consistence test
 - moist cast test
 - ribbon test
- ☐ given the relative percentages of separates in a soil sample, uses the soil texture triangle to determine soil texture classification
- ☐ demonstrates relationships between soil texture and:
 - water holding capacity
 - nutrient holding capacity
 - use capability
- ☐ describes types of soil structure and their influence on:
 - soil tilth
 - seed germination and seedling development
 - root growth and penetration
 - water infiltration and soil aeration
 - susceptibility to erosion
 - soil compaction
- ☐ demonstrates procedures for protecting and building favourable soils structure
- ☐ explains effects of parent material and organic matter on soil colour
- ☐ relates soil colour parameters to:
 - textural and structural properties
 - soil productivity
- ☐ uses the Munsell colour chart to identify the colour name and notation for a soil sample

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Management	4	3	2	1	0
Teamwork	4	3	2	1	0
Use of Equipment and Materials	4	3	2	1	0
Investigative Techniques	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST**The student:****Management**

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time effectively
- ☐ adheres to routine procedures

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems

Use of Equipment and Materials

- ☐ selects and uses appropriate equipment/materials
- ☐ models safe procedures/techniques
- ☐ weighs and measures accurately
- ☐ practises proper sanitation procedures
- ☐ minimizes waste of materials
- ☐ advises of potential hazards and necessary repairs

Investigative Techniques

- ☐ gathers and applies information from a variety of sources
- ☐ explains the acid and alkaline concept, and the importance of soil pH to plant growth
- ☐ draws and labels the pH scale
- ☐ states the standard pH ranges for field soils and container media
- ☐ describes the characteristics of carbonated and disturbed soils as they relate to soil pH
- ☐ identifies chemical and physical amendments used in modifying soil pH in field and container media
- ☐ measures soil pH using a pH test kit, and makes recommendations for media improvement based on measurement results
- ☐ describes the process of cation exchange in soil
- ☐ identifies common soil salts and explains their effect on plant growth
- ☐ measures the electrical conductivity of a soil sample (correct to 0.1 unit) and interprets results relative to soil salinity and productivity
- ☐ provides recommendations for the management and reclamation of soil with salinity problems

REFLECTIONS/COMMENTS:

STANDARD: Achieve a minimum performance rating of 3 for the tasks identified in Section A (Chemical and Biological Control Agents) and a rating of 2 for tasks identified in Section B (Implementing an Integrated Pest Management Program).

Rating Scale

- 4** exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3** meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2** meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1** meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0** has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

A. CHEMICAL AND BIOLOGICAL CONTROL AGENTS	B. IMPLEMENTING AN INTEGRATED PEST MANAGEMENT PROGRAM
<i>The student:</i> ☐ identifies examples of major types of chemical control agents; e.g.: - emulsifiable concentrates - liquids - wettable powders - dusts - granules - fumigation materials ☐ identifies legislation and policy regarding the safe handling, storage and use of chemical control agents ☐ identifies examples of major types of biological control agents; e.g.: - predatory insects - infectious organisms - resistant plants ☐ identifies legislation and policy regarding the safe handling, storage and use of biological control agents ☐ reads and interprets label information for chemical and biological control agents regarding: - safe handling and storage - intended application and use dusts	<i>The student:</i> ☐ identifies two or more pest problems within an agriculture, horticulture or forest industry ☐ performs pest sampling and monitoring procedures in order to determine: - the presence of each pest - their stage of development - the nature/extent of damage caused ☐ establishes threshold levels that determine when pest control measures should be implemented for each pest ☐ identifies and applies pest management procedures for each pest that are based upon: - pest/host biology - consideration of the ecosystem ☐ explains safe techniques for the application of chemical and/or biological control agents: - use of equipment and supplies - mixing and application techniques - clean-up and disposal ☐ assesses the impact of pest control practices on: - human and environmental health - the health of crops and/or livestock

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0 N/A
Analyzing Perspectives	4	3	2	1	0 N/A
Collaboration and Teamwork	4	3	2	1	0 N/A
Evaluating Choices and Making Decisions	4	3	2	1	0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ accurately describes five current issues in agriculture on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding each of the issues
- ☐ assesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Analyzing Perspectives

- ☐ categorizes different points of view regarding each of five issues in agriculture; e.g., cultural, ethical, economic, environmental, health-related, scientific, political
- ☐ states a position on each issue and insightful reasons for adopting that position
- ☐ states three or more opposing positions on each issue and thoughtful reasons for adopting those positions
- ☐ analyzes interrelationships among different perspectives/points of view
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork

- ☐ shares work appropriately among group members
- ☐ respects and considers the views of others
- ☐ negotiates with sensitivity solutions to agriculture management issues

Evaluating Choices/Making Decisions

- ☐ describes in detail important and appropriate alternatives regarding each of five agriculture issues
- ☐ establishes knowledge- and value-based criteria for assessing each alternative e.g., *social, economic, environmental*
- ☐ selects an appropriate and useful alternative for each issue by showing differences among choices
- ☐ assesses strengths/weaknesses of decisions by considering consequences and implications
- ☐ communicates thoughts/feelings/ideas clearly to justify choices/decisions made

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection.

Content

- ☐ provides a clear statement of a social, economic or environmental issue in agriculture relevant within the Alberta and/or Canada context
- ☐ compares and contrasts the Alberta/Canada issue to a similar issue at the global level

Content (continued)

- ☐ cites statements made by scientists, key stakeholder groups and the media regarding the issue
- ☐ suggests different approaches for dealing with the issue at local, national and global levels
- ☐ provides an analysis of costs and benefits associated with different approaches for dealing with the issue.
- ☐
- ☐
- ☐

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication and leadership skills.

Information Sharing

- ☐ demonstrates effective use of a variety of communication media
e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing 7 or more relevant information sources.

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers

- ☐ accesses a range of relevant information sources and recognizes when additional information is required

- ☐ interprets, organizes and combines information in creative and thoughtful ways

- ☐ records information accurately using appropriate technical terms and supporting detail

- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

- ☐ assesses and refines approach to task and project status based on feedback and reflection.

Content

- ☐ provides a clear and concise statement of the issue
- ☐ examines social, political, scientific, ethical, economic and/or environmental perspectives related to the issue

- ☐ provides detailed examples of the consequences of previous human activities relevant to the issue

- ☐ establishes a logical argument and conclusion regarding the issue, and provides a rationale for the position taken

- ☐ develops a plan of action for dealing with the issue at local and global levels

Content (continued)

- ☐ provides a glossary of terms relevant to the issue
- ☐

- ☐

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media

e.g., Written: spelling, punctuation, grammar, format (formal/informal, technical/literary)

Oral: voice projection, body language,

appearance, enthusiasm, evidence of prior practice

Audio-Visual: techniques, tools, clarity, speed and pacing

- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing

- ☐ provides an introduction that describes the purpose and scope of the project

- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position

- ☐ states a conclusion by analyzing and synthesizing the information gathered

- ☐ gives evidence of adequate research through a reference list including 7 or more relevant information sources.

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Analyzing Perspectives	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Evaluating Choices and Making Decisions	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ accurately describes an issue regarding a controversial practice in agriculture and food production on which people disagree, explaining specific causes of disagreement
- ☐ poses thoughtful questions regarding the issue
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data

Analyzing Perspectives

- ☐ categorizes different points of view regarding the issue:
e.g., cultural, ethical, economic, environmental, health-related, scientific, political
- ☐ compares the positions adopted by different stakeholder groups, and summarizes information relevant to different sides of the debate
- ☐ analyzes interrelationships among different perspectives/points of view
- ☐ recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork

- ☐ shares work appropriately among group members
- ☐ respects and considers the views of others
- ☐ explores potential for compromise and/or consensus among stakeholder groups
- ☐ negotiates with sensitivity solutions to related problems

Evaluating Choices/Making Decisions

- ☐ describes in detail important and appropriate alternatives regarding the issue
- ☐ establishes knowledge- and value-based criteria for assessing each alternative:
e.g., social, economic, environmental
- ☐ compares the costs and benefits associated with different approaches for dealing with the issue
- ☐ selects an appropriate and useful alternative by showing differences among choices
- ☐ assesses strengths/weaknesses of decisions by considering consequences and implications for humans and the environment
- ☐ communicates thoughts/feelings/ideas clearly to justify choices/decisions made

REFLECTIONS/COMMENTS:

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

Content (continued)

☐

The student:

Preparation and Planning

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection.

Content

- ☐ provides a clear and concise statement of an ethical issue in agriculture
- ☐ describes social, political, scientific, ethical, economic and environmental perspectives related to the issue
- ☐ develops a logical argument and conclusions regarding a position taken on the issue, and provides a rationale for the position taken
- ☐ develops a responsible plan of action for dealing with the issue at local and global levels
- ☐ provides a glossary of terms relevant to the issue.

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media
e.g., Written: spelling, punctuation, grammar, format (formal/informal, technical/literary)
- Oral: voice projection, body language, appearance, enthusiasm, evidence of prior practice*
- Audio-Visual: techniques, tools, clarity, speed and pacing*
- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including 7 or more relevant information sources.

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and uses correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection.

Content

- ☐ provides a summary of production and consumption patterns within Alberta, Canada and the global community
- ☐ explains the impact of economic, environmental and social factors on practices within a specific production industry; e.g.:
 - international trade/global competition
 - rural and urban populations
 - consumer preferences
 - environmental stewardship/sustainable production

Content (continued)

- ☐ identifies market factors that influence enterprise selection; e.g.:
 - market size, location and access
 - market trends and competition
- ☐ identifies financial opportunities related to a specific production enterprise; e.g.:
 - fixed and variable costs
 - forecast of returns
 - risk factors/income stabilization
- ☐ establishes land requirements, and the suitability of soil, water and climatic conditions to production activities
- ☐ identifies other needs relative to production activities; e.g.:
 - structures and equipment
 - labour and transportation.

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ suggests solutions to problems
- ☐ displays effective communication and leadership skills.

Information Sharing

- ☐ demonstrates effective use of a variety of communication media
e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

REFLECTIONS/COMMENTS

ASSESSMENT CRITERIA: Components of a Plant Breeding Strategy

AGR303(a)-2

RATING	ASSESSMENT CRITERIA
	<i>The student:</i> Schedules Tasks ☐ sets goals and establishes steps to achieve them ☐ accesses a range of relevant in-school/community resources ☐ poses important questions regarding strategies used to maintain/improve quality and productivity of a field crop species ☐ plans and uses time effectively ☐ Identifies Major Components of the Breeding Strategy ☐ interprets, organizes and combines information into a logical sequence ☐ explains principles of heredity as they relate to plants that are grown; e.g.: – dominant/recessive and desirable/undesirable traits – selection criteria and procedures ☐ explains applications of hybridization and/or other systems of breeding used within the industry ☐ describes procedures used to maintain plant quality; e.g.: – standards for grading – record keeping systems ☐ explains current and emerging applications of reproductive technology within the industry; e.g.: – propagation techniques – genetic engineering ☐ Presents and Assesses the Strategy ☐ presents major components of the breeding strategy in a logical sequence using a variety of communication media ☐ assesses the general success of the breeding strategy ☐ makes summative statements regarding opportunities and challenges relevant to maintaining/improving crop quality and productivity within the industry ☐

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

TASK CHECKLIST: Field Crops II

AGR303(a)-3

PRODUCTION TASK	Soil Preparation	Seeding/ Propagation	Crop Cultivation	Irrigation	Fertilizing	Pest/Weed/Disease Control	Harvesting
<i>The student:</i>							
A. performs routine checks on condition of crop plants/ growth medium to determine crop production requirements	☐	☐	☐	☐	☐	☐	☐
B. selects, assembles and calibrates/adjusts appropriate equipment and/or materials as necessary to perform the production task	☐	☐	☐	☐	☐	☐	☐
C. performs the production task by following established procedures and using equipment/materials in an efficient manner	☐	☐	☐	☐	☐	☐	☐
D. follows established guidelines for the safe use of hand and power equipment in performing crop production tasks*	☐	☐	☐	☐	☐	☐	☐
E. disassembles, cleans and/or stores equipment and/or materials used in the course of performing the production task	☐	☐	☐	☐	☐	☐	☐
F. performs routine safety checks on hand and power equipment, and cleans/ sharpens/lubricates/adjusts as required	☐	☐	☐	☐	☐	☐	☐
G. demonstrates effective conservation practices and regard for the environment throughout crop production cycle	☐	☐	☐	☐	☐	☐	☐

• STANDARD IS 2 FOR TASKS A, B, C, E, F AND G IN TWO AREAS OF CROP PRODUCTION ADDITIONAL TO THOSE STUDIED IN AGR203(a)

* STANDARD IS 3 FOR TASK D (SAFE USE OF HAND AND POWER EQUIPMENT)

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

RATING	SELECTION CRITERIA
	<i>The student:</i>
4	Environmental Factors
3	☐ identifies climatic factors essential for successful crop production; e.g.:
2	– length of growing season (growing days, frost-free days)
1	– air and soil temperatures
0	– relative humidity
	– wind
	☐ identifies other environmental factors necessary for successful crop production; e.g.:
	– land and space requirements
	– soil and water characteristics
	☐ assesses general feasibility of crop production based on environmental factors
	☐
4	Technology and Labour Requirements
3	☐ identifies equipment needs at different stages of production
2	☐ identifies structures that may be required throughout the production cycle
1	☐ identifies labour and transportation needs relevant to the production enterprise
0	☐ assesses general feasibility of crop production based on technology and labour requirements
	☐
4	Market and Financial Opportunities
3	☐ predicts market demands and trends for the nursery or greenhouse commodity
2	☐ identifies the size and location of potential markets
1	☐ identifies sources of market competition and a potential marketing strategy
0	☐ makes forecasts of financial opportunities related to crop production; e.g.:
	– fixed and variable costs
	– anticipated returns
	– risk factors
	☐ assesses general feasibility of crop production based on market and financial opportunities
	☐

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
 - 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
 - 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
 - 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST	
<i>The student:</i> Preparation and Planning ☐ sets clear goals and establishes steps to achieve them ☐ creates and adheres to detailed timelines ☐ uses personal initiative to formulate questions and find answers ☐ plans and uses time effectively, prioritizing tasks on a consistent basis. Information Gathering and Processing ☐ accesses a range of relevant information sources and recognizes when additional information is required ☐ demonstrates resourcefulness in collecting data ☐ interprets, organizes and combines information in creative and thoughtful ways ☐ records information accurately with appropriate supporting detail and uses correct technical terms ☐ recognizes underlying bias/assumptions/values in information sources ☐ assesses and refines approach to the task and project status based on feedback and reflection. Content ☐ identifies desirable and undesirable plant traits relevant to one nursery/greenhouse crop variety ☐ describes selection criteria and procedures relative to one nursery/greenhouse crop variety	Content (continued) ☐ explains applications of hybridization in the propagation of one nursery/greenhouse crop variety ☐ provides a summary of procedures used by industry to maintain/improve the quality of a specific nursery/greenhouse crop variety Collaboration and Teamwork ☐ cooperates with group members ☐ shares work appropriately among group members ☐ suggests solutions to problems ☐ displays effective communication and leadership skills. Information Sharing ☐ demonstrates effective use of a variety of communication media <i>e.g., written, oral, audio-visual</i> ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position ☐ maintains acceptable grammatical and technical standards ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

REFLECTIONS/COMMENTS

TASK CHECKLIST: Nursery and Greenhouse Crops II

AGR303(b)-3

SOIL PREPARATION (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)	
<i>The student:</i>	
☐	identifies major soil components
☐	selects an appropriate growing medium
☐	moistens growing medium as necessary
☐	evenly mixes growing medium given a recipe materials
☐	identifies and safely uses appropriate tools and equipment
☐	

CULTIVATION (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)	
<i>The student:</i>	
☐	removes weeds and other debris
☐	adds/mixes amendments as required
☐	smoothes soil for planting and/or rough digs for winter preparation
☐	identifies and safely uses appropriate tools and equipment
☐	

PROPAGATION/TRANSPLANTING (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)	
<i>The student:</i>	
☐	identifies basic germination requirements
☐	germinates seeds using row, broadcast or plug patterns
☐	performs stem cuttings of different plants (e.g., hardwood, softwood)
☐	performs leaf section cuttings
☐	performs air layering
☐	performs simple division
☐	performs pinching/pruning where appropriate
☐	identifies plant material in need of transplanting
☐	transplants rooted seedlings and cuttings
☐	repots pot-bound plants to containers of appropriate size
☐	identifies and safely uses appropriate tools and equipment
☐	
☐	

WATERING/FERTILIZING (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)	
<i>The student:</i>	
☐	checks growing medium for moisture content
☐	applies moisture to plants as required
☐	identifies fertilizer components and function
☐	perform fertilizer calculations given a concentration formula (e.g., 200 parts per million of 9-45-15)
☐	mixes and applies fertilizer according to instructions provided
☐	identifies and safely uses appropriate tools and equipment
☐	

CONTROL OF PESTS/DISEASE (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)	
<i>The student:</i>	
☐	recognizes common plant pests/diseases and their symptoms:
☐	aphid
☐	fungus gnat
☐	mealy bug
☐	spider mite
☐	scales
☐	damping-off
☐	botrytis

CONTROL OF PESTS/DISEASE (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

☐ performs preventative measures for common plant pests and diseases

☐ performs eradication procedures for common plant pests and diseases:
☐ uses pesticide sprayers
☐ uses sticky traps

☐ recognizes and applies appropriate biological pest control measures

☐ uses non-toxic and safe materials

☐ identifies and safely uses appropriate tools and equipment

☐

USE OF GROWING SPACE (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

☐ explains relationships among plant quality, profitability and spacing

☐ identifies factors that determine plant spacing; e.g.:
☐ plant size
☐ container shape
☐ available space
☐ air movement
☐ humidity/light conditions

☐ follows appropriate practices for spacing and rotating plants

CONSERVATION PRACTICES (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

☐ composts waste plant and/or soil material

☐ recycles soil and/or soilless mix

☐ uses timers for lighting

☐ performs mulching to conserve water

☐ considers weather conditions (e.g., wind, temperature, precipitation) when establishing schedules for cultivation

☐

PACKAGING PLANT MATERIAL (PERFORMANCE STANDARD IS 2 IN EACH TASK AREA)

The student:

☐ selects appropriate packaging based on:
☐ weather conditions
☐ size of plant
☐ container style

☐ assembles and prepares packaging materials

☐ packages plant material as required

☐

☐

STANDARD IS 2 EACH APPLICABLE TASK AREA

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and uses correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection.

Content

- ☐ provides a summary of animal production and consumption patterns within Alberta, Canada and the global community
- ☐ explains the impact of economic, environmental and social factors on practices within a specific animal production industry; e.g.:
 - international trade/global competition
 - rural and urban populations
 - consumer preferences
 - environmental stewardship/sustainable production

Content (continued)

- ☐ identifies market factors that influence enterprise selection; e.g.:
 - market size, location and access
 - market trends and competition
- ☐ identifies financial opportunities related to a specific production enterprise; e.g.:
 - fixed and variable costs
 - forecast of returns
 - risk factors/income stabilization
- ☐ establishes land requirements, and the suitability of soil, water and climatic conditions to production activities
- ☐ identifies other needs relative to production activities; e.g.:
 - structures and equipment
 - labour and transportation.

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ suggests solutions to problems
- ☐ displays effective communication and leadership skills.

Information Sharing

- ☐ demonstrates effective use of a variety of communication media
e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

RATING	ASSESSMENT CRITERIA
	<i>The student:</i>
4	Schedules Tasks
3	☐ sets goals and establishes steps to achieve them
2	☐ accesses a range of relevant in-school/community resources
1	☐ poses important questions regarding strategies used to maintain/improve quality of a livestock, poultry or specialty animal
0	☐ plans and uses time effectively
	☐
4	Identifies Major Components of the Breeding Strategy
3	☐ interprets, organizes and combines information into a logical sequence
2	☐ explains principles of heredity as they relate to the animals being raised; e.g.:
1	– dominant/recessive and desirable/undesirable traits
0	– selection criteria and procedures
	☐ explains applications of inbreeding, linebreeding and crossbreeding within the industry
	☐ explains the reproductive process and related terminology; e.g.:
	– estrous cycle
	– natural service/artificial insemination
	– gestation period
	– birthing process
	☐ describes systems used to maintain animal quality within the industry; e.g.:
	– pedigrees and performance information
	– showing/judging systems and standards
	– registry and record systems
	☐ explains current and emerging applications of reproductive technology within the industry; e.g.:
	– embryo transfer
	– gender selection
	☐
4	Presents and Assesses the Strategy
3	☐ presents major components of the breeding strategy in a logical sequence using a variety of communication media
2	☐ assesses the general success of the breeding strategy
1	☐ makes summative statements regarding opportunities and challenges relevant to maintaining/improving animal quality within the industry
0	☐

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

**STANDARD IS 2 FOR THE
ANIMAL CARE TASKS LISTED IN
ALL AREAS OF ANIMAL
PRODUCTION**

Rating Scale

4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

FEEDING <i>The student:</i> ☐ monitors animals and pens for adequate water supply/consumption and ensures animals are properly watered ☐ selects correct ration and quantity of food for animal ☐ explains rules of thumb for quantities/volumes consumed daily or weekly ☐ feeds at correct times ☐ operates required feeding equipment ☐ performs routine health checks during feeding ☐ performs routine inspection/cleaning/maintenance of feed boxes and troughs during feeding	HANDLING AND RESTRAINT <i>The student:</i> ☐ demonstrates effective animal handling technique (e.g., body stance/movement, appropriate use of force, control of noise) ☐ uses animal handling aids in a proper and safe manner (e.g., prods, whips, canes) ☐ uses animal handling facilities in a proper and safe manner (e.g., chutes, pens, gates) ☐ uses animal restraint equipment in a proper and safe manner (e.g., cattle squeeze, hog crate, head gate) ☐ demonstrates ability to handle animals in groups and/or in large areas (e.g., herding, droving, moving)
HOUSING/BEDDING <i>The student:</i> ☐ monitors physical environment, ensuring appropriate light, temperature, air circulation and space variables ☐ provides appropriate fencing and shelter to ensure animal safety ☐ cleans and disinfects trailers, pens and other animal holding structures ☐ ensures animal comfort through supply of bedding material	CARE FOR YOUNG <i>The student:</i> ☐ demonstrates appropriate technique to catch/hold baby animals ☐ cleans new born animals ☐ assists new born animals to nurse
HEALTH AND WELFARE <i>The student:</i> ☐ identifies basic symptoms of ill health/disorders in: – respiration – movement – eating habits – physical appearance (e.g., stomach, coat, eyes, ears) – sounds – manure and urine analysis ☐ identifies symptoms and treatments for common pests, diseases and ailments that affect the health of animals within the industry ☐ administers basic treatments for common pests, diseases and/or ailments (e.g., injections, dusting)	OTHER <i>The student:</i> ☐

Assessment Criteria and Conditions:

- given a specific agrifood industry, identify and describe:
 - the roles of federal, provincial and local government agencies responsible for product quality, worker safety and environmental impact within the industry
 - examples of government policy and/or legislation that regulate practices within the industry

Suggested Reference(s):

- *Agriscience and Technology*

STANDARD: Respond to a minimum standard of 3 on the rating scale

Rating Scale

- 4 meets project/task objectives in a self-directed manner. Provided explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
 - 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using precise terminology. Requires little or no prompting.
 - 2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.
 - 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
 - 0 does not complete task, or is unable to provide a suitable response
- N/A Not applicable

Background Information	Sample Questions/Activities
See <i>Agriscience and Technology</i>, Chapter 9 - Processing Agricultural Products: • Control Systems • Quality Control • Processing • Preserving • Packaging • Storage. Contact local agrifood industries and government agencies for current information and resources. See the Learning Resource Guide (Section I) for a listing of industry and government contacts.	1. Explain the role of government legislation in maintaining product quality and safety within an agrifood industry: e.g., – inspection of raw materials – product grading, labelling and packaging – sanitation standards – worker safety – environmental impact. 2. Research the mandates of specific government agencies in maintaining product quality and worker safety: e.g., – Agriculture Canada – Alberta Agriculture, Food and Rural Development – Consumer and Corporate Affairs – Health and Welfare Canada. 3. Research potential applications of the International Standards Organization (ISO) in regulating industry practices. 4. Research the mandates of specific government agencies regarding environmental safety and industry use of land, water and air; e.g.: – Alberta Environmental Protection – Environment Canada.

TASK	Observation/Rating			
Preparation and Planning	4	3	2	1 0 N/A
Content	4	3	2	1 0 N/A
Presenting/Reporting	4	3	2	1 0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection

Content

- ☐ provides a brief introduction that explains the application of basic economic principles within an agrifood industry; e.g.:
 - supply and demand
 - diminishing return
 - comparative advantage
- ☐ identifies relevant supply management systems and their impact on industry practices
- ☐ explains management practices adopted by the agrifood industry to comply with government policy/legislation concerning product quality and safety; e.g.:
 - inspection of raw materials
 - product grading
 - packaging and labelling
 - sanitation and safety standards

Content (continued)

- ☐ explains specific management practices adopted by the agrifood industry to comply with government policy/legislation concerning responsible use of the environment; e.g.:
 - effluent disposal
 - soil conservation practices
 - water treatment after use
 - use of biodegradable materials

- ☐ provides a glossary of terms relevant to management practices within the agrifood industry

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media:

e.g., Written: *spelling, punctuation, grammar, format (formal/informal, technical/literary)*

Oral: *voice projection, body language,*

appearance, enthusiasm, evidence of

prior practice

Audio-Visual: *techniques, tools, clarity, speed and pacing*

- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including seven or more relevant information sources

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Content

- ☐ describes current impacts of economic, environmental and societal trends on industry practices; e.g.:
 - international trade/global competition
 - trade liberalization
 - sustainable development
 - rural/urban demographics
 - food safety/consumer confidence
 - consumer preferences

Content (continued)

- ☐ outlines opportunities for product research and development within the industry; e.g.:
 - altering existing products
 - developing new products
 - developing new markets
- ☐
- ☐
- ☐ makes summative statements regarding industry trends and opportunities within Alberta, Canada and the global community, based on current challenges, needs and issues

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing

- ☐ demonstrates effective use of a variety of communication media:
 - e.g., *written, oral, audio-visual*
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing seven or more relevant information sources.

TASK CHECKLIST: Landscape and Turf Management II

AGR306-1

MAINTENANCE TASK	Watering and Fertilizing (measurement, application)	Cultivation and Mulching of Plants	Mowing, Trimming and Edging of Turfgrass	Pruning of Plants (corrective pruning, heading back, thinning, jump cutting)	Control of Pests/Disease	Spring/Winter Preparation (cleanup, repair, dethatching, aeration)	Installation of Plant Material (planting, transplanting, turf establishment, staking, guying)
<i>The student:</i>							
A. performs routine checks on plants/ growth medium to determine the need for service	☐	☐	☐	☐	☐	☐	☐
B. selects, assembles and calibrates appropriate equipment and/or materials as necessary to perform the maintenance service	☐	☐	☐	☐	☐	☐	☐
C. performs the maintenance service by safely following established procedures	☐	☐	☐	☐	☐	☐	☐
D. follows established guidelines for the safe use of hand and power equipment relevant to the service*	☐	☐	☐	☐	☐	☐	☐
E. disassembles, cleans and/or stores equipment and/or materials used in the course of performing the service	☐	☐	☐	☐	☐	☐	☐
F. performs routine safety checks on hand and power equipment, and cleans/ sharpens/lubricates as required	☐	☐	☐	☐	☐	☐	☐
G. demonstrates effective conservation practices and regard for the environment in providing the service	☐	☐	☐	☐	☐	☐	☐

• STANDARD IS 2 FOR TASKS A, B, C, E, F AND G IN EACH OF FOUR AREAS OF LANDSCAPE/ TURFGRASS SERVICE

* STANDARD IS 3 FOR TASK D (SAFE USE OF HAND AND POWER EQUIPMENT)

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

STANDARD: Achieve a minimum

performance rating of 2 for all tasks listed in categories A, B, C, D, E, and for three tasks listed in category F.

Rating Scale

4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

A. FEEDING <i>The student:</i> ☐ monitors animals and pens for adequate water supply and consumption ☐ selects correct ration and quantity of food for animal ☐ explains rules of thumb for quantities/volumes consumed daily or weekly ☐ feeds at correct times ☐ operates required feeding equipment ☐ performs routine health checks during feeding ☐ performs routine inspection/cleaning/maintenance of feed boxes and troughs during feeding	D. HANDLING AND RESTRAINT <i>The student:</i> ☐ demonstrates effective animal handling technique (e.g., body stance/movement, appropriate use of force, control of noise) ☐ uses animal handling aids in a proper and safe manner (e.g., prods, canes, whistle) ☐ uses animal handling facilities in a proper and safe manner (e.g., chutes, pens, gates) ☐ uses animal restraint equipment in a proper and safe manner ☐ demonstrates ability to handle animals in groups and/or in large areas (e.g., herding, droving, moving)
B. HOUSING/BEDDING <i>The student:</i> ☐ monitors physical environment, ensuring appropriate light, temperature, air circulation and space variables ☐ provides appropriate fencing and shelter to ensure animal safety ☐ cleans and disinfects trailers, pens and other animal holding structures ☐ ensures animal comfort through supply of bedding material	E. CARE FOR YOUNG <i>The student:</i> ☐ demonstrates appropriate technique to catch/hold baby animals ☐ cleans new born animals ☐ assists new born animals to nurse
C. HEALTH AND WELFARE <i>The student:</i> ☐ identifies basic symptoms of ill health/disorders in: – respiration – movement – eating habits – physical appearance (e.g., stomach, coat, eyes, ears) – sounds – manure and urine analysis ☐ identifies symptoms and treatments for common pests, diseases and ailments that affect the health of animals within the industry ☐ administers basic treatments for common pests, diseases and/or ailments (e.g., injections, dusting)	F. HUSBANDRY AND TRAINING <i>The student:</i> ☐ demonstrates appropriate technique for approaching and petting the animal ☐ demonstrates appropriate technique for restraining the animal ☐ demonstrates appropriate technique for walking and/or leading the animal ☐ demonstrates appropriate technique for controlling and/or disciplining the animal ☐ demonstrates appropriate technique for exercising the animal ☐ demonstrates appropriate technique for grooming the animal

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and uses correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection.

Content

- ☐ describes contributions of technology to animal health care practices; e.g.:
 - nutrition
 - obstetrics
 - disease prevention/treatment
 - cage/kennel/stable management
- ☐ explains reproductive technologies that are used in breeding a horse (or other domestic animal); e.g.:
 - artificial insemination
 - embryo transfer
 - estrous manipulation
 - gender selection

Content (continued)

- ☐ identifies legislation and policy that must be addressed through the management of a boarding or training facility; e.g.:
 - environmental considerations
 - safety and health inspection/regulation
- ☐ explains systems used to maintain records regarding animal ancestry and history; e.g.:
 - pedigrees and breeding records
 - partition records
 - performance information
- ☐ describes procedures used to maintain quality of the animal breed; e.g.:
 - breed association standards/regulations
 - showing/judging systems and standards

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ suggests solutions to problems
- ☐ displays effective communication and leadership skills.

Information Sharing

- ☐ demonstrates effective use of a variety of communication media
e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST	
<i>The student:</i> Preparation and Planning ☐ sets clear goals and establishes steps to achieve them ☐ creates and adheres to detailed timelines ☐ uses personal initiative to formulate questions and find answers ☐ plans and uses time effectively, prioritizing tasks on a consistent basis	Content (continued) ☐ explains applications of colour to create mood and develop theme in floral arrangements ☐ uses the colour wheel to explain relationships among colours in the spectrum ☐ provides examples of: - monochromatic colour schemes - complementary colour schemes - analogous colour schemes - triadic colour schemes Collaboration and Teamwork ☐ cooperates with group members ☐ shares work appropriately among group members ☐ negotiates solutions to problems ☐ displays effective communication and leadership skills
Information Gathering and Processing ☐ accesses a range of relevant information sources and recognizes when additional information is required ☐ demonstrates resourcefulness in collecting data ☐ interprets, organizes and combines information in creative and thoughtful ways ☐ records information accurately with appropriate supporting detail and using correct technical terms ☐ recognizes underlying bias/assumptions/values in information sources ☐ assesses and refines approach to the task and project status based on feedback and reflection	Information Sharing ☐ demonstrates effective use of a variety of communication media <i>e.g., written, oral, audio-visual</i> ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position ☐ maintains acceptable grammatical and technical standards ☐ gives evidence of adequate information gathering by citing relevant information sources
Content ☐ explains and illustrates basic principles of: - arrangement and composition - balance and symmetry - proportion and scale - rhythm - harmony - depth and line - texture and focal point	

REFLECTIONS/COMMENTS

**CONDITIONING FRESH CUT
FLOWERS AND GREENERY**
**(PERFORMANCE STANDARD IS 2 IN
EACH TASK AREA)**
The student:
☐ unpacks incoming stock and inspects for disorders/irregularities

☐ prepares containers for incoming stock

☐ mixes preservatives

☐ uses correct water temperature to condition materials

☐ cuts stems under water

☐ cuts stems to correct length

☐ stores materials at correct temperature

☐ incorporates recutting of stems and replacement of solutions as part of regular work routine

☐ handles and cleans emergency spills, and maintains facilities in a sanitary condition

☐
☐
☐
**HANDLING DRIED AND FABRIC
FLOWERS AND GREENERY**
**(PERFORMANCE STANDARD IS 2 IN
EACH TASK AREA)**
The student:
☐ bundles materials correctly

☐ hangs/boxes materials in a manner that prevents breaking, soiling and fading

☐ organizes materials in an effective manner

☐
☐
**PACKAGING CUT FLOWERS,
INTERIOR PLANTS AND FLORAL
ARRANGEMENTS (continued)**
☐ includes care tags, preservatives, etc., in packaging

☐ keeps packaging neat and clean in appearance

☐ performs tasks in order of priority

☐
☐
**USING CONSTRUCTION
MATERIALS**
**(PERFORMANCE STANDARD IS 2 IN
EACH TASK AREA)**
The student:
☐ ties floral bows using ribbons of different width

☐ wraps wires of different gauge using floral tape

☐
☐
**PACKAGING CUT FLOWERS,
INTERIOR PLANTS AND FLORAL
ARRANGEMENTS**
**(PERFORMANCE STANDARD IS 2 IN
EACH TASK AREA)**
The student:
☐ packages materials to protect, stabilize and preserve during transport

☐ packages materials without causing damage to floral stock

☐ packages materials to withstand adverse weather conditions

CONSTRUCTING FLORAL ARRANGEMENTS (PERFORMANCE STANDARD IS 1 IN EACH TASK AREA)

The student:

☐ identifies and distinguishes between symmetrical and asymmetrical triangular arrangements

☐ identifies and distinguishes between horizontal and pyramidal centrepieces

☐ identifies different types of European arrangements:
☐ presentation style bouquet
☐ cluster arrangement
☐ vegetative arrangement
☐ parallel arrangement
☐ hogarth curve

☐

☐ follows and implements a plan for constructing a symmetrical triangular arrangement

☐ follows and implements a plan for constructing an asymmetrical triangular arrangement

☐ follows and implements a plan for constructing a horizontal centrepiece

☐ follows and implements a plan for constructing a pyramidal centrepiece

☐ follows and implements a plan for constructing a European style arrangement (e.g., presentation, cluster)

CONSTRUCTING FLORAL ARRANGEMENTS (continued)

☐ follows and implements a plan for constructing a second European style arrangement (e.g., vegetative, parallel)

☐

STANDARD IS 1 OR 2 AS INDICATED IN EACH APPLICABLE TASK AREA

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

PRODUCT ASSESSMENT: Floral Design II

AGR308-3

PROJECT STANDARDS	PROJECT: Triangular Arrangement (symmetrical)	PROJECT: Triangular Arrangement (asymmetrical)	PROJECT: Horizontal Centrepiece	PROJECT: Pyramidal Centrepiece	PROJECT: European Arrangement (e.g., presentation, cluster)	PROJECT: European Arrangement (e.g., vegetative, parallel)	PROJECT:
Application of Design Principles • colour scheme is appropriate • composition and arrangement are correct • balance and symmetry are achieved • proportion and scale are evident • rhythm and harmony are achieved • depth and/or line are evident • texture and/or focal point are evident	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	
Quality of Workmanship • materials used were appropriate and consistent with design concept • secure in construction and finished on all sides • construction is concealed • all floral materials placed at proper height, depth and/or angle • wrapping is smooth, snug and tight • performs check on final product for quality, quantity and/or appeal	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	
PROJECT RATING							

STANDARD IS 1 IN EACH APPLICABLE TASK.

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

Agriculture /G.120
(Interim '094)

CSB: 96 06 07

MONITORING GROWTH MEDIA	
<i>The student:</i>	
☐ maintains appropriate depth of growth media	
☐ top dresses and conditions growth media as required	
☐	
☐	

WATERING AND FERTILIZING	
<i>The student:</i>	
☐ performs checks to determine appropriate moisture for plant growth	
☐ applies required water when necessary	
☐ drains excess water from plant	
☐ identifies fertilizer components and their function	
☐ suggests appropriate fertilizers for selected species and/or situations	
☐	
☐	

CONTROLLING PESTS	
<i>The student:</i>	
☐ identifies and practices effective strategies for pest prevention	
☐ identifies common plant pests; e.g.:	
☐ spider mite	
☐ mealy bug	
☐ scale	
☐ aphid	
☐ fungus gnats	
☐ suggests appropriate eradication treatments	
☐	
☐	

PRUNING AND WASTE REMOVAL	
<i>The student:</i>	
☐ maintains clean plants and display areas	
☐ performs corrective pruning as required; e.g.:	
☐ removal of dead and/or broken branches	
☐ removal of dead or damaged leaves	
☐ removal of dead flowers	
☐	

PLANT ROTATION	
<i>The student:</i>	
☐ identifies appropriate plant locations for maintenance and health reasons; e.g.:	
☐ consider temperature requirements	
☐ consider light requirements	

PLANT ROTATION (continued)	
☐ replaces plants as required	
☐ identifies appropriate plant locations for sales promotion; e.g.:	
☐ display purposes	
☐ stock storage	
☐ sales promotion	
☐	

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. Quality, particularly details and finishes and productivity are consistent and exceed standards. Leads others to contribute to team goals. Analyzes and provides effective client/customer services beyond expectations.
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. Quality and productivity are reasonable consistent. Works cooperatively. Provides a limited range of customer/client services.
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0 N/A
Information Gathering and Processing	4	3	2	1	0 N/A
Content	4	3	2	1	0 N/A
Collaboration and Teamwork	4	3	2	1	0 N/A
Information Sharing	4	3	2	1	0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
 - 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
 - 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
 - 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST	
<i>The student:</i>	
Preparation and Planning ☐ sets clear goals and establishes steps to achieve them ☐ creates and adheres to detailed timelines ☐ uses personal initiative to formulate questions and find answers ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.	Content (continued) ☐ explains the influence of specific government policies and legislation on marketing activities ☐ compares approaches used to market the commodity in Canada with other nations; e.g.: – United States – nations of the Pacific Rim – Europe ☐ makes forecasts regarding future exchange and marketing of the commodity
Information Gathering and Processing ☐ accesses a range of relevant information sources and recognizes when additional information is required ☐ demonstrates resourcefulness in collecting data ☐ interprets, organizes and combines information in creative and thoughtful ways ☐ records information accurately with appropriate supporting detail and uses correct technical terms ☐ recognizes underlying bias/assumptions/values in information sources ☐ assesses and refines approach to the task and project status based on feedback and reflection.	Collaboration and Teamwork ☐ cooperates with group members ☐ shares work appropriately among group members ☐ suggests solutions to problems ☐ displays effective communication and leadership skills.
Content ☐ identifies social, economic and environmental factors that influence market trends for an agriculture commodity ☐ provides a rationale for “supply management” within the industry ☐ explains specific marketing structures, agencies and/or policies that regulate commodity supply and exchange; e.g.: – marketing boards and cooperatives – quota systems and monopolies	Information Sharing ☐ demonstrates effective use of a variety of communication media <i>e.g., written, oral, audio-visual</i> ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position ☐ maintains acceptable grammatical and technical standards ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

RATING	ASSESSMENT CRITERIA
	<i>The student:</i>
4	Schedules Tasks
3	☐ defines the task
2	☐ identifies task components and organizes them into a logical sequence
1	☐ uses time effectively
0	☐
4	Develops a Venture Plan
3	☐ accesses basic in-school/community information sources regarding the product/service and potential customers/markets
2	☐ describes the product/service, customer and target market
1	☐ analyzes <u>six</u> or more factors that affect decisions to produce and market the commodity; e.g.:
0	☐ – commodity supply, quality and/or pricing ☐ – existing sources of competition ☐ – time constraints on perishable products ☐ – international and/or domestic trade rules ☐ – income support programs and subsidies ☐ establishes a viable marketing alternative for the product/service; e.g.: ☐ – extensive (open) ☐ – selective (niche) ☐ establishes a pricing, packaging/labeling, advertising, promotion and distribution strategy consistent with venture goals and consumer preferences ☐ identifies intended venture outcomes and/or product/service sales ☐ summarizes opportunities and challenges relevant to the venture plan ☐
4	Assesses and Communicates the Venture Plan
3	☐ presents the venture plan in a logical sequence using one or more communication media
2	☐ uses correct grammar and technical terms
1	☐ predicts the likelihood of suggested outcomes/sales being realized
0	☐ make summative statements regarding strengths/weaknesses and general feasibility of the venture plan ☐

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.

3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.

2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.

1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.

0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Information Gathering and Processing	4	3	2	1	0
Content	4	3	2	1	0
Collaboration and Teamwork	4	3	2	1	0
Information Sharing	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis.

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and uses correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection.

Content

- ☐ identifies a specific problem in agriculture and food production recently addressed through biotechnology; e.g.:
 - production costs
 - product quality
 - market supply
 - environmental impact
- ☐ identifies key stakeholder groups affected by the problem
- ☐ describes funding and partnerships established to address the problem

Content (continued)

- ☐ explains applications of biotechnology in dealing with the problem:
 - principles of genetic engineering
 - scientific design
 - experimental outcomes
- ☐ assesses the social, economic and environmental consequences of technology applications
- ☐ makes recommendations regarding the current and future use of the technology; e.g.:
 - management actions
 - further research

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ suggests solutions to problems
- ☐ displays effective communication and leadership skills.

Information Sharing

- ☐ demonstrates effective use of a variety of communication media
 - e.g., *written, oral, audio-visual*
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ provides evidence of adequate information gathering by citing relevant and current information sources.

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection.

Content

- ☐ provides a clear and concise statement of an issue regarding the impact of one or more agriculture practices on the water resource
- ☐ describes social, political, scientific, ethical, economic and environmental perspectives related to the issue
- ☐ develops a logical argument and conclusions regarding a position taken on the issue, and provides a rationale for the position taken
- ☐ develops a responsible plan of action for dealing with the issue at local and global levels
- ☐ provides a glossary of terms relevant to the issue.

Content (continued)

☐
☐
☐
☐

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media

e.g., Written: spelling, punctuation, grammar, format (formal/informal, technical/literary)

Oral: voice projection, body language, appearance, enthusiasm, evidence of prior practice

Audio-Visual: techniques, tools, clarity, speed and pacing

- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including 7 or more relevant information sources.

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Management	4	3	2	1	0
Teamwork	4	3	2	1	0
Use of Equipment and Materials	4	3	2	1	0
Investigative Techniques	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not applicable

TASK CHECKLIST**The student:****Management**

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time effectively in a logical sequence
- ☐ displays leadership in adhering to routine procedures
- ☐ attempts to solve problems prior to requesting help

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication skills

Use of Equipment and Materials

- ☐ independently selects and uses equipment/materials
- ☐ demonstrates concern for safe procedures/techniques
- ☐ measures accurately and efficiently
- ☐ practices proper sanitation procedures
- ☐ minimizes waste of materials
- ☐ anticipates potential hazards and emergency response

Investigative Techniques

- ☐ conducts investigations of physical properties of water important to plants and/or animals; e.g.:
 - turbidity
 - temperature
 - odour/taste
- ☐ conducts investigations of chemical properties of water important to plants and/or animals; e.g.:
 - dissolved oxygen
 - pH
 - mineral content
- ☐ conducts investigations of biological properties of water important to plants and/or animals; e.g.:
 - bacteria
 - viruses
 - algae and plankton
- ☐ interprets water test results and makes recommendations regarding the suitability of the sample for a specific use in agriculture
- ☐ recommends water treatments prior to use in agriculture based on the results of water tests
- ☐ performs one or more water treatments designed to enhance water quality/suitability for use in agriculture

REFLECTIONS/COMMENTS

RATING	ASSESSMENT CRITERIA
4 3 2 1 0	<i>The student:</i> Schedules Tasks ☐ sets goals and establishes steps to achieve them ☐ accesses a range of relevant in-school/community resources ☐ poses important questions regarding water management strategies for an agriculture venture ☐ plans and uses time effectively ☐ Develops a Water Management Plan ☐ interprets, organizes and combines information into a logical sequence ☐ identifies available surface and ground water supplies ☐ determines water requirements for the venture according to estimates of consumption ☐ describes suitable techniques for managing limited and/or excess water supplies in the venture; e.g.: - irrigation, storage, recycling - diversion, drainage, flood control ☐ identifies treatments for enhancing water quality both before and after use in agriculture ☐ identifies agriculture practices effective in maintaining a sustainable production system; e.g.: - cropping rotations - management of animal wastes - conservation tillage - fertilizer and pesticide management ☐ Presents and Assesses the Plan ☐ presents major components of the water management plan in a logical sequence using a variety of communication media ☐ assesses the general feasibility of the water management plan ☐ makes summative statements regarding opportunities and challenges relevant to maintaining/improving water supply and quality for the venture ☐

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0 N/A
Information Gathering and Processing	4	3	2	1	0 N/A
Content	4	3	2	1	0 N/A
Collaboration and Teamwork	4	3	2	1	0 N/A
Information Sharing	4	3	2	1	0 N/A

STANDARD IS 3 IN EACH APPLICABLE TASK

Rating Scale

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
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 - 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- ☐ sets clear goals and establishes steps to achieve them
- ☐ creates and adheres to detailed timelines
- ☐ uses personal initiative to formulate questions and find answers
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis

Information Gathering and Processing

- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ demonstrates resourcefulness in collecting data
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately with appropriate supporting detail and using correct technical terms
- ☐ recognizes underlying bias/assumptions/values in information sources
- ☐ assesses and refines approach to the task and project status based on feedback and reflection

Collaboration and Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates with sensitivity solutions to problems
- ☐ displays effective communication and leadership skills

Information Sharing

- ☐ demonstrates effective use of a variety of communication media:
e.g., written, oral, audio-visual
- ☐ communicates thoughts/feelings/ideas clearly to justify or challenge a position
- ☐ maintains acceptable grammatical and technical standards
- ☐ gives evidence of adequate information gathering by citing seven or more relevant information sources.

Content (continued)

- ☐ describes the impacts of specific water management practices within each system on the environment; e.g.:
 - water diversion
 - irrigation practices
- ☐ describes potential impacts of pesticide/fertilizer use within each system on soil, water and air characteristics
- ☐ describes potential impacts of selective breeding/genetic engineering within each system on the biodiversity of plant/animal populations
- ☐ identifies other environmental pollutants resulting from large-scale and/or specialized production practices within each system, and their impact on land, water, air and wildlife

REFLECTIONS/COMMENTS

TASK	Observation/Rating				
Preparation and Planning	4	3	2	1	0
Content	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale**

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

TASK CHECKLIST*The student:***Preparation and Planning**

- ☐ sets goals and describes steps to achieve them
- ☐ uses personal initiative to formulate questions and find answers
- ☐ accesses a range of relevant information sources and recognizes when additional information is required
- ☐ interprets, organizes and combines information in creative and thoughtful ways
- ☐ records information accurately using appropriate technical terms and supporting detail
- ☐ plans and uses time effectively, prioritizing tasks on a consistent basis
- ☐ assesses and refines approach to task and project status based on feedback and reflection

Content

- ☐ provides a brief introduction that explains economic and environmental goals relevant to a production venture
- ☐ outlines plans for multiple land use within the venture
- ☐ outlines plans for ensuring sustainable use of the environment; e.g.:
 - strategies for soil fertility and conservation
 - water management practices
- ☐ develops strategies to manage interrelationships and dependencies among domestic and non-domestic plant and animal species; e.g.:
 - retention of grasslands
 - maintenance of wetlands

Content (continued)

- ☐ identifies relevant government policies and regulations that support sustainable production practices within the venture; e.g.:
 - environmental constraints
 - inspection and regulation

- ☐ provides a glossary of terms relevant to sustainable production practices

Presenting/Reporting

- ☐ demonstrates effective use of a variety of communication media:
e.g., Written: *spelling, punctuation, grammar, format (formal/informal, technical/literary)*

Oral: *voice projection, body language, appearance, enthusiasm, evidence of prior practice*

Audio-Visual: *techniques, tools, clarity, speed and pacing*

- ☐ maintains acceptable grammatical and technical standards through proof-reading and editing
- ☐ provides an introduction that describes the purpose and scope of the project
- ☐ states a conclusion by analyzing and synthesizing the information gathered
- ☐ gives evidence of adequate research through a reference list including seven or more relevant information sources

REFLECTIONS/COMMENTS

AGRICULTURE

SECTION H: LINKAGES/TRANSITIONS

(INTERIM)

TABLE OF CONTENTS

This section of the GSI has been designed to provide an overview of linkages and transitions of CTS modules with a number of organizations. The charts and information presented in this section will assist CTS students and teachers in understanding the potential application of CTS modules as students move into the workplace.

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* All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

LINKAGES/TRANSITIONS

LINKAGES

With Other CTS Strands

The Agriculture strand provides opportunities for students to develop competencies in one or more industry sectors, including:

- plant and/or animal production
- agrifoods
- agribusiness
- landscape and turf management
- animal husbandry and health care
- floristry
- marketing
- environmental management.

Each industry sector (and area of course emphasis) links with competencies that are developed in other CTS strands. To facilitate and strengthen these linkages, courses may be designed by combining Agriculture modules with modules from other CTS strands, (e.g., Construction Technologies, Design Studies, Fabrication Studies, Foods, Forestry, Mechanics, Wildlife). Potential linkages of Agriculture with other CTS strands, determined by course emphasis and area of industry specialization, are identified in this section (see "Connections with Other CTS Strands", page H.3).

The Career Transitions strand of CTS provides project, practicum, safety and leadership modules that may be combined with modules in Agriculture to increase opportunity for students to develop expertise and refine their competencies. For example, a plant production or landscape venture may require more than the 25, 50 or 75 hours available through modules by that name. In these cases, project and/or practicum modules from the Career Transitions strand can be accessed so as to provide sufficient time for completion of learning and the task.

Sample courses in Agriculture that involve linkages with other CTS strands are provided in this section (see "Agriculture in Junior High", page H.4 and "Agriculture in Senior High", page H.5).

With Other Secondary Programs

The Agriculture strand has many links with other core and complementary subject areas across the curriculum. For example, many of the modules in Agriculture link with the junior and senior high science programs, and provide opportunities for students to extend and apply related knowledge and skills in practical ways. Potential linkages of Agriculture with other core and complementary subject areas across the curriculum are identified in this section (see "Agriculture: Connections Across the Curriculum", page H.6).

With Practical Arts Courses

Modules in the Agriculture strand replace existing content in the Junior High Agriculture: Land and Life, and Horticulture 12, 22 and 32 programs. A detailed correlation of the Agriculture strand to these practical arts courses can be found in this section (see "Agriculture: Correlations with Practical Arts Courses: Agriculture: Land and Life 7, 8 and 9", pages H.7-9, and "Agriculture: Correlations with Practical Arts Courses: Horticulture 12, 22 and 32", pages H.10-12).

TRANSITIONS

To The Workplace

Intermediate and advanced modules are designed to develop knowledge, skills and attitudes that provide transitions to occupations in Alberta's agriculture industries. Some career sectors welcome individuals who have basic skills and are prepared to learn through further training from the employer.

Information from the National Occupational Classification (NOC) regarding occupations in agriculture-related areas that can be accessed upon completion of high school is provided in this section (see "Agriculture: Related Occupations", pages H.13-14).

To Related Post-secondary Programs

Advanced level modules will assist students to make plans regarding further studies in agriculture at post-secondary levels. The Agriculture modules provide desirable background and skills for entry into related programs at public and private colleges, technical institutes, universities and vocational colleges in Alberta. In addition, opportunities exist for further training and experience through the Landscape Gardener Apprenticeship Training Program.

An outline of post-secondary institutions in Alberta currently offering programs in agriculture-related areas is provided in this section (see "Agriculture: Summary of Related Post-secondary Programs", page H.15).

CREDENTIALLING

Students may earn partial or complete credentials recognized in the workplace and/or post-secondary institutions by demonstrating specified competencies within the CTS curriculum. The Agriculture strand, in conjunction with modules from the Career Transitions strand, may provide opportunities for students to develop competencies that link with:

- First Aid certificate courses
- the Alberta Green Certificate Farm Training Program
- the Landscape Gardener Apprenticeship Training Program
- Flowers Canada Accreditation programs
- Pesticide Applicator/Dispenser certificate courses.

In addition, formal agreements have been established with Olds College for the recognition of competencies developed in some Agriculture modules.

Teachers may wish to explore opportunities for linking courses in Agriculture with these and/or other credentialling programs. Further information regarding credentialling in Agriculture is provided in this section (see "Credentialling Opportunities in Agriculture", page H.16).

LINKAGES – Agriculture: Connections with Other CTS Strands

Agriculture Modules	Other CTS Strands															
	Career Transitions	Communication Technology	Community Health	Construction Technology	Cosmetology Studies	Design Studies	Electro Technologies	Energy and Mines	Enterprise and Innovations	Fabrication Studies	Fashion Studies	Financial Management	Foods	Forestry	Information Processing	Legal Studies
Theme: Social & Cultural Perspectives																
AGR101: Agriculture: Getting the Big Picture																
AGR102: From Producer to Consumer																
AGR202: Animal Husbandry & Health Care																
AGR301: Global Issues in Agriculture																
AGR302: Ethics in Agriculture & Food Production																
Theme: Technology & Applications																
AGR103: Production Basics																
AGR106: Consumer Products & Services																
AGR109: Marketing Fundamentals																
AGR110: Application of Agriculture Technology																
AGR203: Field, Nursery & Greenhouse Crops I																
AGR203: Livestock, Poultry & Animal Specialties I																
AGR205: Agrifoods I																
AGR206: Landscape & Turf Management I																
AGR207: Pets & Equine I																
AGR208: Floral Design I																
AGR209: Marketing I																
AGR210: Controlled Growing Environments																
AGR303: Field, Nursery & Greenhouse Crops II																
AGR304: Livestock, Poultry & Animal Specialties II																
AGR305: Agrifoods II																
AGR306: Landscape & Turf Management II																
AGR307: Pets & Equine II																
AGR308: Floral Design II																
AGR309: Marketing II																
AGR310: Applications of Biotechnology																
Theme: Management & Conservation																
AGR111: Resource Management & Conservation																
AGR212: Soils Management I																
AGR213: Integrated Pest Management																
AGR311: Water Management																
AGR312: Soils Management II																
AGR313: Environmental Conservation & Consequences																

Provides many direct links with competencies in this strand. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical situations.



Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.



LINKAGES – Agriculture in Junior High

Course Emphasis	Agriculture Modules	Foods Modules	Mechanics Modules	Wildlife Modules
Environmental Management (3 modules)	Agriculture: Getting the Big Picture Resource Management & Conservation			Our Wildlife— Our Responsibility
Landscape Maintenance (4 modules)	Agriculture: Getting the Big Picture Applications of Agriculture Technology Consumer Products & Services		Engine Fundamentals	
Agrifoods (5 modules)	Agriculture: Getting the Big Picture Applications of Agriculture Technology Consumer Products and Services	Food Basics Canadian Foods: Our Heritage		
Field Crop Production (6 modules)	Agriculture: Getting the Big Picture Applications of Agriculture Technology Production Basics Marketing Fundamentals		Engine Fundamentals Mechanical Systems	

LINKAGES – Agriculture in Senior High

Area of Course Emphasis	Agriculture Modules	Enterprise & Innovation Modules	Design Studies Modules	Career Transitions Modules
Introductory Horticulture (5 credits) Prerequisite: None	Production Basics Field, Nursery & Greenhouse Crops I Consumer Products and Services	Challenge and Opportunity		Project 1A 2
Intermediate Horticulture (5 credits) Prerequisite: Introductory Horticulture	Field, Nursery & Greenhouse Crops II Landscape and Turf Management I Soils Management I 1	Planning a Venture		Project 2A 2
Advanced Horticulture (5 credits) Prerequisites: Intermediate Horticulture	Controlled Growing Environments Landscape and Turf Management II Soils Management II 1	Making It Happen		Project 3A 2
Beginning Floral Design and Plantscape (3 credits) Prerequisite: None	Floral Design I		Design Techniques—Fundamentals	Project 2A 3
Advanced Floral Design and Plantscape (3 credits) Prerequisite: Beginning Floristry and Plantscape	Floral Design II		3-D Design—Studio	Project 3A 3

1. Contains specific learner expectations consistent with Soils Management (Soils 100–35) at Olds College.
2. Potential linkage with Landscape Gardener Apprenticeship Training Program.
3. Potential linkage with Floristry Accreditation Program.

LINKAGES – Agriculture: Connections Across the Curriculum

Agriculture Modules	Across the Curriculum															
	Junior High								Senior High							
	Language Arts	Social Studies	Mathematics	Science	Health & PLS	Physical Education	Fine Arts	English	Social Studies	Mathematics	Science (General)	Biology	Chemistry	Physics	CALM	Physical Education
Theme: Social & Cultural Perspectives																
AGR101: Agriculture: Getting the Big Picture																
AGR102: From Producer to Consumer																
AGR202: Animal Husbandry & Health Care																
AGR301: Global Issues in Agriculture																
AGR302: Ethics in Agriculture & Food Production																
Theme: Technology & Applications																
AGR103: Production Basics																
AGR106: Consumer Products & Services																
AGR109: Marketing Fundamentals																
AGR110: Application of Agriculture Technology																
AGR203: Field, Nursery & Greenhouse Crops I																
AGR203: Livestock, Poultry & Animal Specialties I																
AGR205: Agrifoods I																
AGR206: Landscape & Turf Management I																
AGR207: Pets & Equine I																
AGR208: Floral Design I																
AGR209: Marketing I																
AGR210: Controlled Growing Environments																
AGR303: Field, Nursery & Greenhouse Crops II																
AGR304: Livestock, Poultry & Animal Specialties II																
AGR305: Agrifoods II																
AGR306: Landscape & Turf Management II																
AGR307: Pets & Equine II																
AGR308: Floral Design II																
AGR309: Marketing II																
AGR310: Applications of Biotechnology																
Theme: Management & Conservation																
AGR111: Resource Management & Conservation																
AGR212: Soils Management I																
AGR213: Integrated Pest Management																
AGR311: Water Management																
AGR312: Soils Management II																
AGR313: Environmental Conservation & Consequences																

Provides many direct links with course content. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical contexts.

Provides some links with course content, usually through the application of related technologies and/or processes.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*
Agriculture: Land and Life 7, 8 and 9

	Agriculture: Getting the Big Picture	From Producer to Consumer	Production Basics	Consumer Products & Services	Marketing Fundamentals	Applications of Agriculture Technology	Resource Management & Conservation	Agrifoods I	Controlled Growing Environments	Soils Management I	Agrifoods II	Soils Management II
Module Numbers	101	102	103	106	109	110	111	205	210	212	305	312
Survey: What is Agriculture?												
diversity of agriculture	x											
steps in production, processing and marketing		x										
agriculture careers	x		x	x	x							
agriculture as both producer and consumer	x											
historical trends	x											
local, national and international food production	x				x							
transportation and trade of food products		x		x	x							
factors that support and inhibit food production	x	x	x									
global issues in food production							x					
YEAR ONE												
Theme 1: Production, Processing and Marketing - Emphasis on Consumer												
consumption; consumer needs and preferences	x											
classifying products	x											
steps in processing and packaging		x		x								
approaches to marketing					x							
farm production		x	x									
transportation and storage		x		x	x							
career specializations	x		x	x	x							
local, provincial and national production	x				x							
Theme 2: Technology and Research - Mechanics												
tasks performed in agriculture production		x	x			x						
manual and mechanical approaches to production			x			x						
power sources						x						
technology as a means of problem solving						x						
efficiency of technologies			x	x		x						
safe use of technologies			x	x		x						
effectiveness of technologies			x	x		x						
drawing, designing and constructing technologies						x						
Theme 3: Resource Management - Water												
water requirements		x	x				x					
water resources							x					
landforms and water supply							x					
strategies for water management							x					
water rights							x					
water issues							x					
trade-offs in water uses							x					
conservation ethic	x						x					
careers in water management	x		x	x	x							

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*
Agriculture: Land and Life 7, 8 and 9 (continued)

	Agriculture: Getting the Big Picture	From Producer to Consumer	Production Basics	Consumer Products & Services	Marketing Fundamentals	Applications of Agriculture Technology	Resource Management & Conservation	Agrifoods I	Controlled Growing Environments	Soils Management I	Agrifoods II	Soils Management II
<i>Module Numbers</i>	101	102	103	106	109	110	111	205	210	212	305	312
YEAR TWO												
Theme 1: Production, Processing and Marketing - Emphasis on Nutrition												
nutrient composition of foods								x			x	
consumer needs and preferences	x											
identifying and classifying products	x											
processing and packaging		x		x								
farm production operations		x	x									
breed development						x						
transportation and storage		x		x	x							
local, national and international production	x				x							
Theme 2: Technology and Research - Planning, Monitoring and Managing												
natural, artificial and micro environments									x			
plant growth and plant health			x									
soil moisture and humidity			x									
plant propagation			x									
pest and disease management			x									
controlled growing environments									x			
optimum conditions for plant growth			x									
Theme 3: Resource Management - Soil												
soil functions and characteristics			x				x					
soil types			x				x					
soil development							x					
nutrient cycles										x		
soil degradation							x					
soil management							x					
organic and inorganic nutrients							x					
global issues in soil management							x					
careers in soil management	x		x	x	x							
YEAR THREE												
Theme 1: Production, Processing and Marketing - Emphasis on Energy												
range of food crops	x											
consumption: consumer needs and preferences	x											
identifying and classifying products	x											
processing, packaging and merchandising		x		x	x							
farm production operations		x	x									
transportation and storage		x		x	x							
inherent and invested energy						x						
food pyramid	x											
local, national and international production	x				x							

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*

Agriculture: Land and Life 7, 8 and 9 (continued)

	Agriculture: Getting the Big Picture	From Producer to Consumer	Production Basics	Consumer Products & Services	Marketing Fundamentals	Applications of Agriculture Technology	Resource Management & Conservation	Agrifoods I	Controlled Growing Environments	Soils Management I	Agrifoods II	Soils Management II
<i>Module Numbers</i>	101	102	103	106	109	110	111	205	210	212	305	312
Theme 2: Technology and Research - Biotechnology												
breeds and varieties			x			x						
genetic characteristics			x			x						
principles of animal breeding			x			x						
artificial insemination and embryo transplants			x			x						
growth supplements and food additives			x			x						
hormones			x			x						
biotechnology			x			x						
Theme 3: Resource Management - Land Use												
classifying land uses							x					
identifying land use issues	x						x					
evaluating alternative land uses							x					
historical changes in land use							x					
sustained yield and stewardship							x					
interpreting/drawing land use plans												x
setting goals in land use	x						x					
careers in land use planning	x		x	x	x							

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

	202	203	204	205	206	207	208	209	210	212	213	301	302	303	304	305	306	307	308	309	310	311	312	
	Animal Husbandry and Health Care	Field Nursery & Greenhouse Crops I	Livestock, Poultry & Animal Specialties I	Agrifoods I	Landscape & Turf Management I	Pets and Equine I	Floral Design I	Marketing I	Controlled Growing Environments	Soils Management I	Integrated Pest Management	Global Issues in Agriculture	Ethics in Agriculture & Food Production	Field, Nursery & Greenhouse Crops II	Livestock, Poultry & Animal Specialties II	Agrifoods II	Landscape and Turf Management II	Pets & Equine II	Floral Design II	Marketing II	Applications of Biotechnology	Water Management	Soils Management II	Environmental Conservation & Consequence
HORTICULTURE 12																								
landscaping					X												X							
indoor plants					X		X			X							X		X					
soils and fertilizers					X								X										X	
food production		X											X											
botany and biology		X			X						X		X	X			X							
greenhouses		X							X					X										
pruning					X												X							
floral design							X												X					X
HORTICULTURE 22A																								
food and ornamental plants		X			X								X	X			X							
greenhouses		X							X				X	X										
greenhouse systems									X															
safety		X			X				X	X	X			X			X		X					
soils in greenhouse		X							X	X			X	X								X		
practical project		X			X		X		X					X			X		X					X
HORTICULTURE 22B																								
ground maintenance					X					X	X						X					X		X
scheduling and planning ground care activities																	X							X
site preparation					X																			X
planting trees, shrubs, lawns, annuals and perennials					X												X							X

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

	202	203	204	205	206	207	208	209	210	212	213	301	302	303	304	305	306	307	308	309	310	311	312	
	Animal Husbandry and Health Care	Field Nursery & Greenhouse Crops I	Livestock, Poultry & Animal Specialties I	Agrifoods I	Landscape & Turf Management I	Pets and Equine I	Floral Design I	Marketing I	Controlled Growing Environments	Soils Management I	Integrated Pest Management	Global Issues in Agriculture	Ethics in Agriculture & Food Production	Field, Nursery & Greenhouse Crops II	Livestock, Poultry & Animal Specialties II	Agrifoods II	Landscape and Turf Management II	Pets & Equine II	Floral Design II	Marketing II	Applications of Biotechnology	Water Management	Soils Management II	Environmental Conservation & Consequences
					X					X	X						X				X	X	X	
general maintenance of landscaped areas					X					X	X						X					X	X	
use of equipment and tools					X												X							X
landscape construction and maintenance					X					X	X						X				X	X		X
HORTICULTURE 22C																								
history of park and garden development																								
reasons for landscaping																								X
commercial and residential design																								X
preparation of a landscape plan																								X
cost estimating																								X
using annual and perennial flowers					X												X							
use of indoor plants							X												X					
design work using flowers and plants							X												X					
HORTICULTURE 32A																								
nursery site selection		X												X										
identification of woody ornamentals		X			X									X			X							
propagation of woody ornamentals and greenhouse crops		X			X									X			X							
nursery development		X												X										
marketing procedures								X												X				
scheduling of crops		X												X										
greenhouse cost accounting																								X
practical project		X			X		X		X					X					X					X

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:* Horticulture 12, 22 and 32 (continued)

	202	203	204	205	206	207	208	209	210	212	213	301	302	303	304	305	306	307	308	309	310	311	312	Career Transitions
	Animal Husbandry and Health Care	Field Nursery & Greenhouse Crops I	Livestock, Poultry & Animal Specialties I	Agrifoods I	Landscape & Turf Management I	Pets and Equine I	Floral Design I	Marketing I	Controlled Growing Environments	Soils Management I	Integrated Pest Management	Global Issues in Agriculture	Ethics in Agriculture & Food Production	Field, Nursery & Greenhouse Crops II	Livestock, Poultry & Animal Specialties II	Agrifoods II	Landscape and Turf Management II	Pets & Equine II	Floral Design II	Marketing II	Applications of Biotechnology	Water Management	Soils Management II	Environmental Conservation & Consequence
Module Numbers																								
HORTICULTURE 32B																								
biological aspects of horticulture		x			x						x			x			x							
horticulture crops		x		x									x	x										
ecological aspects of organic gardening		x										x		x										x
ecological aspects of parks and other landscapes					x							x					x					x		
HORTICULTURE 32C																								
landscape construction																								
pesticide application		x			x						x			x			x							
business management																	x							x
work study		x			x		x							x			x		x					x

*All practical arts courses will be replaced by Career and Technology Studies in September, 1997.

TRANSITIONS – Agriculture: Related Occupations

Information for this chart was obtained from the National Occupations Classification (NOC) descriptions:

Educational Requirements:

D: High School Education

C: Apprenticeship

B: College or Vocational Education

A: University

Occupation Profile	NOC#	D	C	B	A
Agricultural and Fish Products Inspectors	2222	✓		✓	✓
Agricultural and Related Service Contractors and Managers	8252	✓		✓	✓
Agricultural Commodity Inspectors	2222	✓		✓	✓
Agricultural Engineer	2148				✓
Agricultural Engineering Technologist	2221/223			✓	✓
Agricultural Mechanic/Farm Equipment Mechanic	7312		✓		
Agricultural Products Processing Occupations	9461	✓			
Agricultural Representatives, Consultants and Specialist	2123				✓
Animal Care Attendant	6483			✓	✓
Animal Health Technologist	3213			✓	
Artificial Insemination Technologist	8252			✓	
Aquaculture and Marine Harvest Labourers	8611	✓			
Aquaculture Operators and Managers	8257	✓		✓	
Beekeeper	8251	✓		✓	
Biochemist	2112				✓
Biological Technician	2221			✓	✓
Biologist and Related Scientists	2121				✓
Botanist	2121				✓
Dairy Producer	8251			✓	
District Agriculturist	2123			✓	✓
Environmental Auditor	2263			✓	✓
Environmental Education Specialist	4169				✓
Environmental Engineer	2131/2148				✓
Farm Supervisors and Specialized Livestock Workers	8253	✓		✓	
Farm Workers	8431	✓			
Farmers and Farm Managers	8251	✓		✓	
Farrier	7383			✓	
Feed Mill Worker (Production)	9461	✓			
Florist (Floral Designer)	6421			✓	
Grain and Forage Crop Producers	8251	✓		✓	✓
Grain Elevator Manager	6234	✓		✓	
Grain Elevator Operators	6234	✓			
Greenhouse/Nursery Operator	8254/8256	✓		✓	

...continued

TRANSITIONS - Agriculture: Related Occupations (continued)

Occupation Profile	NOC#	A	B	C	D
Harvesting Labourers	8611	✓			
Hazardous Waste Management Technician	2263			✓	
Hydrologist	2113				✓
Inspectors in Public and Environmental Health and Occupational Health & Safety	2263	✓		✓	✓
Land Surveyors	2154				✓
Landscape and Horticulture Technicians and Specialists	2225			✓	✓
Landscape Architect	2152				✓
Landscape Architectural Technologist	2225			✓	
Landscape Gardener	2225		✓		
Landscaping and Grounds Maintenance Contractors and Manager	8255			✓	
Landscaping and Grounds Maintenance Labourers	8612	✓			
Livestock Producer	8251	✓	✓	✓	✓
Manufacturing Managers	0911			✓	✓
Market Gardener	8251	✓		✓	
Other Labourers in Processing, Manufacturing and Utilities	9619	✓			
Other Professional Engineers	2148				✓
Other Professional Occupations in Physical Sciences	2115				✓
Pet Groomer and Animal Care Worker	6483		✓		
Pest Control Operator/Exterminator	7444		✓		
Pollution Control Technical	2211				✓
Primary Production Managers	0811				✓
Supervisors, Food, Beverage	6212	✓			
Supervisors, Landscape and Horticulture	8256	✓			
Testers and Graders, Food and Beverage Processing	9465	✓			
Turfgrass Management Specialist	2225			✓	
Veterinarian	3114				✓

TRANSITIONS – Agriculture: Summary of Related Post-secondary Programs

	PUBLIC COLLEGES									PRIVATE COLLEGES				TECH. INST.		UNIVERSITIES			VOCATIONAL COLLEGES							
	Fairview College	Grande Prairie Regional College	Grant MacEwan Community College	Lakeland College	Lethbridge Community College	Medicine Hat College	Mount Royal College	Olds College	Red Deer College	APPRENTICESHIP TRADE				Augustana University College	Canadian Union College	Concordia College	King's University College, The	Northern Alberta Institute of Technology	Southern Alberta Institute of Technology	University of Alberta	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake
Agricultural Business/Management Agricultural Production/Technology Agriculture (degree program with various specializations) Animal Health Technology Beekeeper Technician (Apiarist) Equine Studies/Western and English Trainer's Assistant Farrier Science Horticulture / Landscape Design / Gardening Turfgrass Management Technology Pre-Veterinary Medicine	CD			D	CD			D											B							
	D			D	CD			D														CBM				
				It		It	It		It		It	It								BM	It					
	D			D				D										D D								
	C																									
	C		D					CD																		
	C							C																		
								CD		4y								D						C		
	CD								D																	

CODES:	B	Bachelor's Degree	D	Diploma (2 years)	w	weeks
	M	Master's Degree	V	Varies	m	months
	Ph.D.	Doctoral Degree	It	One-year transfer	y	years
	C	Certificate (1 year or less)	2t	Two-year transfer		

*Information taken from "It's About Time: To Start Thinking About Your Future", Advanced Education and Career Development, 1995.

CREDENTIALLING – *Credentialling Opportunities in Agriculture*

Certificate	Agency	Other Strands	Modules	Instructor Qualifications	Comments
Farmer Pesticide Certificate Program	Extension Services, Olds College	CTR	Project modules: (CTR211 - 215) (CTR311 - 315)	Yes, with Olds College	Contact: Extension Services Olds College (403) 556-8344
Flowers Canada Accreditation Program • Design Skills • Retail Skills	Flowers Canada, The Association of the Canadian Floral Industry		Floral Design I (AGR208) Floral Design II (AGR308)	Not finalized at this time	Evaluation done by Flowers Canada member. Contact: Flowers Canada, Association of the Canadian Floral Industry (519) 823-2670 or, Flowers Canada, Alberta Region, (403) 672-2553
Green Certificate Farm Training Program • Beef Production • Dairy Production • Crop Production • Irrigated Crop Production • Sheep Production • Swine Production	Alberta Agriculture, Food & Rural Development		Field, Nursery and Greenhouse Crops I (AGR203) Field, Nursery and Greenhouse Crops II (AGR303) Livestock, Poultry and Animal Specialties I (AGR204) Livestock, Poultry and Animal Specialties II (AGR304)	Not finalized at this time	Final evaluation done by Green Certificate personnel. For additional information contact (403) 427-2173
Lawn and Garden Domestic Pesticide Dispenser Course	Extension Services, Olds College	CTR	Project modules: (CTR211 - 215) (CTR311 - 315)	Yes, with Olds College	Contact: Extension Services, Olds College (403) 556-8344
Pesticide Applicator Certificate • Agriculture • Landscape • Industrial	Continuing Education, Lakeland College	CTR	Project modules: (CTR211 - 215) (CTR311 - 315)	None Certification available upon successful completion of extension course and final examination	For information, contact: Continuing Education, Lakeland College (403) 853-8444
Retail Pesticide Dispenser Certificate (Class I)	Continuing Education, Lakeland College	CTR	Project modules: (CTR211 - 215) (CTR311 - 315)		

AGRICULTURE

SECTION I: LEARNING RESOURCE GUIDE

(INTERIM)

TABLE OF CONTENTS

This section of the GSI has been designed to provide a list of resources that support student learning. Three different types of resources are identified:

- Authorized: Resources authorized by Alberta Education for CTS curriculum; these resources are categorized as basic, support, or teaching
- Other: Titles provided as a service to assist local jurisdictions to identify resources that contain potentially useful ideas for teachers. Alberta Education has done a preliminary review of these resources, but further review will be necessary for use in school jurisdictions
- Additional: A list of local and provincial sources of information available to teachers, including the community, government agencies, resource centres and organizations.

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INTRODUCTION

CTS AND THE RESOURCE-BASED CLASSROOM

Career and Technology Studies (CTS) encourages teachers to establish a resource-based classroom, where a variety of appropriate, up-to-date print and non-print resources are available. Learning resources identified for CTS strands include print, software, interactive videos, manipulatives, student learning guides and tutorials.

The resource-based classroom approach accommodates a variety of instructional strategies and teaching styles, and supports individual or small group planning. It provides students with opportunities to interact with a wide range of information sources in a variety of learning situations. Students in CTS are encouraged to take an active role in managing their own learning. Ready access to a strong resource base enables students to learn to screen and use information appropriately, to solve problems, to meet specific classroom and learning needs, and to develop competency in reading, writing, speaking, listening and viewing.

PURPOSE AND ORGANIZATION OF THIS DOCUMENT

The purpose of this document is to help teachers identify a variety of resources to meet their needs and those of the students taking the new Agriculture curriculum. It is hoped that this practical guide to resources will help teachers develop a useful, accessible resource centre that will encourage students to become independent, creative thinkers.

This document is organized as follows:

- Authorized Resources:
 - basic learning resources
 - support learning resources
 - teaching resources
- Other Resources
- Additional Sources.

Some resources in the guide have been authorized for use in some or all of the CTS strands, e.g., the 11-video Career and Technology Studies series produced by ACCESS Network. Full information is provided in the appropriate section of this resource guide.

Each resource in the guide provides bibliographic information, an annotation where appropriate, and a correlation to the Agriculture modules. The distributor code for each entry will facilitate ordering resources. It is recommended that teachers preview all resources before purchasing, or purchase one copy for their reference and additional copies as required.

Distributor Code	Resources		Levels/Mod. No.		
			1	2	3
ATEC	Title	Author	101	201	301
	Bibliographic Information				
	Annotation				

1 = Introductory
2 = Intermediate
3 = Advanced
Indicates module number

Distributor Code - see
Distributor Directory

HOW TO ORDER

Most authorized resources are available from the Learning Resources Distributing Centre (LRDC) at:

12360 – 142 Street
Edmonton, AB
T5L 4X9
Telephone: (403) 427-2767
Fax: (403) 422-9750

Please check LRDC for availability of videos.

The section on Additional Sources lists a variety of other places to find information related to this strand. In addition, at the back of this document is a Distributor Directory, which contains the name and address of each publisher/distributor referred to in the resource list. Note that in some cases a resource may be published by one company but distributed through another.

The information contained is as complete and accurate as possible.

RESOURCE POLICY

For further information on resource policy and definitions, refer to the *Student Learning Resources Policy* and *Teaching Resources Policy* or contact:

Learning Resources Unit
Curriculum Standards Branch
Alberta Education
5th Floor, Devonian Building, East Tower
11160 Jasper Avenue
Edmonton, AB
T5K 0L2
Telephone: (403) 422-4872
Fax: (403) 422-0576

AUTHORIZED RESOURCES

BASIC LEARNING RESOURCES

The following basic learning resources have been authorized by Alberta Education for use in the Agriculture curriculum. These resources address the majority of the learner expectations in one or more modules and/or levels. A curriculum correlation appears in the right-hand column.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Agriculture: Land and Life</i>. Year 1, Grade 7, 8 or 9. Edmonton, AB: Alberta Distance Learning Centre, 1990. Student Pack. Includes four student modules and answer booklets dealing with "Milk and Milk Products", "People, Machines and Grain", "Water and Agriculture" and "What is Agriculture?" (a summary). Elements of this package can also be ordered individually. The materials are designed to develop an awareness of the diversity of agricultural activity in the student's local area, in Alberta, and in the national and international community. Various topics are introduced through the examination of current agricultural practices and in many cases through hands-on activities. Topics are relevant to students in both rural and urban areas. These resources are useful to inexperienced Agriculture teachers or experienced Agriculture teachers wishing to try a different approach. A Learning Facilitator's Manual to accompany the student modules is also available.	101		
		102		
		103		
		106		
		109		
		110		
		111		
LRDC	<i>Agriculture: Land and Life</i>. Year 2, Grade 7, 8 or 9. Edmonton, AB: Alberta Distance Learning Centre, 1992. Student Pack. Includes four student modules and answer booklets dealing with "Managing Soil Resources", "Greenhouse Technology", "Meat and Meat Products" and "What is Agriculture?" (a summary). Elements of this package can also be ordered individually. The materials are designed to develop an awareness of the diversity of agricultural activity in the student's local area, in Alberta, and in the national and international community. Various topics are introduced through the examination of current agricultural practices and in many cases through hands-on activities. Topics are relevant to students in both rural and urban areas. These resources are useful to inexperienced agriculture teachers or experienced agriculture teachers wishing to try a different approach. A Learning Facilitator's Manual to accompany the student modules is also available.	101		
		102		
		103		
		106		
		109		
		110		
		111		

Basic Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Agriscience and Technology.</i> L. DeVere Burton. Albany, NY: Delmar Publishers Inc., 1992. This student textbook addresses the evolution of agriculture. It includes basic science, research and technological development used in agriculture. The text discusses technological advances from past to present, and research that may affect agriculture in the future. The textbook is divided into five sections, including Biotechnology, Technology: Food and Fibre, Energy and Power Technology, Computer Aided Management and Environmental Technology.	101		
		102		
		103		
		106		
		109		
		110		
		111		
LRDC	<i>Ecosystems.</i> D. Herridge and B. Chernin. Gage Educational Publishing, 1995.. The 72 page student text provides an-illustrated introduction to ecosystems, and a more in-depth look at living and non-living factors and the roles they play in ecosystems. The text concludes with examples of human impacts on ecosystems and examines current issues from a variety of perspectives. The 500 page teacher's resource book provides teaching ideas that correlated to the student text, and suggestions regarding evaluation, supplementary resources and integrated projects. Blackline master reproducible for classroom use are provided.	102	212	301
		103	213	302
		110		311
		111		312
				313
LRDC	<i>Global Environment, The.</i> Steven Sterling and Sue Lyle. Mississauga, ON: Copp Clark Pitman, 1991. This text addresses a broad range of environmental issues within a global context. Issues are examined through a variety of stimulating activities, including case studies, discussion and role-playing.	111	212	301
				311
				312
				313
LRDC	<i>Home Floral Design.</i> Lansing, MI: The John Henry Company, 1991. This student textbook addresses basic techniques used in the florist industry. Colourful illustrations, photographs and well-illustrated step-by-step instructions make the textbook easy to use by students and teachers. Soft cover format.		208	308
LRDC	<i>Landscaping Principles and Practices.</i> Jack E. Ingels. Albany, NY: Delmar Publishers Inc., 1992. This student textbook provides an introductory overview of the landscaping industry. It includes basic principles of landscape design, methods of installation and maintenance, and strategies for beginning a landscaping business.		206	306

Basic Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Soils Investigations I.</i> Ed Toews, Bill Souster, Doug Peters. Olds, AB: Land Sciences Centre, Olds College, 1993. The student text addresses the history of soil development, soil forming factors, components of soil, classification, texture, structure, colour, pH and salinity. Each unit includes brief statements about the purpose for studying the unit, what the student should be able to do at the end of the unit, suggested activities, definition of technical terms, self-checks and answer keys.		212	
LRDC	<i>Soils Investigations II.</i> Ed Toews, Bill Souster, Doug Peters. Olds, AB: Land Sciences Centre, Olds College, 1993. This student textbook addresses the nutrient requirement of plants, soil fertility, fertilizers, soil testing, the western grid survey system, soil capability and soil survey maps and reports. Each unit includes the purpose for studying the unit, what students should be able to do at the completion of a unit, suggested activities, definition of technical terms, self-checks and answer keys.			312
LRDC	<i>Which Future? Investigating World Environmental Issues.</i> Don Harris and Chris Dolan. Mississauga, ON: Copp Clark Pitman, 1992. This text deals with a variety of environmental issues and cites examples from many parts of the world. Topics covered include food and population, land degradation, forest clearing, pollution and alternative energy sources.		212	301 311 312 313

SUPPORT LEARNING RESOURCES

The following support learning resources are authorized by Alberta Education to assist in addressing some of the learner expectations of a module or components of modules.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
AGP	<i>Backyard Pest Management.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, 1994. Booklet. This 83-page booklet provides basic information about the management of insects, weeds, plant diseases and vertebrate pests commonly found in the homeowner's backyard. The information is intended to help individuals select non-chemical and chemical approaches to solving pest problems. The booklet provides answers to over 150 common pest problems, discusses alternatives to pesticides and develops strategies for the safe use of pesticides.		203 206 213	303 306
ACC	<i>Career and Technology Studies: Key Concepts.</i> Edmonton, AB: ACCESS Network. Series of videos and utilization guides relevant to all CTS strands. Series consists of <i>Anatomy of a Plan, Creativity, Electronic Communication, The Ethics Jungle, Go Figure, Innovation, Making Ethical Decisions, Portfolios, Project Planning, Responsibility and Technical Writing.</i>	all	all	all
LRDC	<i>Chemicals on the Farm.</i> Bob McDuell. Cheltenham, England: Stanley Thornes (Publishers) Ltd, 1990. This resource addresses a variety of topics regarding the effects of chemicals on agriculture, including food chains, soil acidity, the nitrogen cycle, the manufacture of nitric acid, reactions of nitric acids, making fertilizers and water pollution. This booklet has limited print and makes extensive use of graphics.		203	301 303 313
LRDC	<i>Commercial Greenhouse, The.</i> James W. Boodley. Albany, NY: Delmar Publishers Inc., 1981. This textbook focuses attention on the technical aspects of greenhouse facilities, the economics of the horticulture industry, growing media, environmental factors, greenhouse crops and the harvest handling and marketing of plants and flowers. The text includes information on occupations in floriculture. This is an American publication and does not provide references to Canada.		203 210	303
ACC	<i>If You Build It.</i> Winnipeg, MB: Ducks Unlimited Canada, 1991. Videotape (21 minutes). This videotape discusses the importance of wetlands in maintaining the health of ecosystems. An overview of human factors involved in wetland restoration is provided.	111		301 311 313

Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
ACC	<i>Life Cycle of Waterfowl.</i> Winnipeg, MB: Ducks Unlimited Canada, 1991. Videotape (24 minutes). This videotape discusses the importance of waterfowl as a natural resource, and the habitat features that make Alberta a primary area for waterfowl production. Provides a basic understanding of the life history and ecology of waterfowl. Patterns of duck migration routes are discussed.	111		301 311 313
LRDC	<i>Living Soil, The: A Renewable Resource.</i> Sue Bland and Marilyn Lewry. Edmonton, AB: Weigl Education Publishers Limited, 1991. Provides an introduction to soil—where it comes from, what happens in soil, and why it is important. Part I explores what soil is and how it is formed. Part II examines what happens in soil. Part III looks at the role of soil in the environment and the effects of human activities on soil. Includes case studies, activities, occupational profiles and a glossary.	111	212	312
LRDC	<i>One Minute Readings: Issues in Science, Technology and Society.</i> R.F. Brinckerhoff. Don Mills, ON: Addison-Wesley Publishing Company, 1992. This book contains readings and questions related to issues in science, technology and society. Applications of science are raising difficult questions and are creating some problems that cannot be answered. The book is intended to give students practice in making the kinds of decisions they will experience in life. Students need a knowledge of science to find the best possible answers. A teacher's manual is available.			301 302 313
LRDC	<i>Organic Field Crop Handbook.</i> Dee Kramer, et al. Ottawa, ON: Canadian Organic Growers Inc., 1992. Handbook. The book provides an introduction to organic farming. The handbook is divided into three sections: Basic Principles of Organic Agriculture; Designing Crop Rotation; Step-by-step Guide to Field Crops. The purpose of the book is to provide information regarding sustainable agriculture practices.		203 209	303 309 313
LRDC	<i>Raising Poultry Successfully.</i> Will Graves. Charlotte, VT: Williamson Publishing Co., 1985.. The author provides practical advice on how to raise chickens, ducks and geese for meat and eggs. The book also addresses techniques for housing and care techniques for animals.		204	304

Support Learning Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Soil Science & Management.</i> (2nd edition.) Edward J. Plaster. Albany, NY: Delmar Publishers Inc., 1992. This resource addresses the importance of soil, soil origin and development, physical properties of soil, soil water, water conservation, irrigation and drainage, organic matter, soil fertility, soil pH and salinity, plant nutrition, soil sampling and testing, fertilizers, organic amendments, tillage and cropping systems, horticulture uses of soils, soil classification and soil conservation. This is an American publication and does not provide references to Canada.		203 212	303 312 313
LRDC	<i>University of Alberta Home Gardening Course.</i> John Harapiak. Edmonton, AB: University of Alberta, Faculty of Extension, 1986. This textbook provides an in-depth study of home gardening. The content, tables, graphs and maps apply to Alberta. It covers sub-topics under the headings of Garden Fundamentals, Landscaping, Vegetable and Fruit Production and Controlled Environments. Appropriate to the needs of high school students.		203 206 213	303 306
LRDC	<i>Water and Agriculture.</i> Edmonton, AB: Alberta Environment, 1988. Resource kit. This kit includes a Student Book, Teacher's Guide, Activity Master Sheets, Overhead Projector Masters and Masters for Posters. The resource establishes an understanding of how water affects and is affected by agricultural practices. The unit examines technological practices developed to manage water in times and places where inadequate or excessive supplies occur. Of particular relevance to junior high students.	111		301 311
FEESA	<i>Wetland Environments.</i> Lloyd Pearce. Edmonton, AB: Ducks Unlimited Canada, 1991. Kit. This educational kit addresses the following topics: wetlands ecology, wetlands habitats, wetland and waterfowl, wetland conservation and wetland environmental issues. The central focus is on problem-oriented investigation involving research, experimental procedure and field experiences. The kit includes student materials, teacher notes and video resources.	111		301 311 313

TEACHING RESOURCES

The following teaching resources are authorized by Alberta Education to assist teachers in the instructional process.

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Agriculture: Land and Life.</i> Year 1, Grade 7, 8, or 9. Edmonton, AB: Alberta Distance Learning Centre, 1990. Learning Facilitators Manual. See Basic Learning Resources for module correlation and annotation.			
LRDC	<i>Agriculture: Land and Life.</i> Year 2, Grade 7, 8, or 9. Edmonton, AB: Alberta Distance Learning Centre, 1992. Learning Facilitators Manual. See Basic Learning Resources for module correlation and annotation.			
LRDC	<i>Ecology Studies of Lakes in Alberta.</i> Edmonton, AB: Alberta Environment, 1988. Resource materials include book and Teacher's Package, 1989. This print package deals with the ecology of freshwater environments. The unit of study discusses human impact on lake environments and involves students in the methods and technology employed to study lakes. Workshops on how to use the materials are provided.	111	213	301 311 313
LRDC	<i>Ecosystems.</i> D. Herridge and B. Chernin. Gage Educational Publishing, 1995..Teacher's Resource Book. See Basic Learning Resources for module correlation and annotation.			
GGE	<i>From the Ground Up.</i> Garry Ens., et al. Winnipeg, MB: Green and Growing Educational Projects, 1994. Videotape and Teacher's Guide. This 30-minute video focuses on issues of sustainable development in agriculture and food production. The video explores relationships between agricultural practices and the health of our society, environment and economy. The program encourages debate over food production and marketing practices, giving viewers an opportunity to consider their influence as consumers and citizens on the way food is produced. The video is supported with a Teacher's Guide giving lesson plans and student worksheets.		205 209	301 305 309 313

Teaching Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Issues: An Integrated Approach to Sensitive Science and Society Issues.</i> A. Hersovici. Mississauga, ON: Ontario Farm Animal Council (OFAC), 1992. Resource book. This resource deals with some of the ethical, environmental, health and socio-economic issues concerning agriculture today. The resource suggests teaching strategies that encourage critical thinking, research and collaborative decision making. A number of case studies are included along with a contact list for further research.		202	301 302 313
LRDC	<i>One Minute Readings: Issues in Science, Technology and Society.</i> R.F. Brinckerhoff. Don Mills, ON: Addison-Wesley Publishing Company, 1992. Teacher's Manual. See Support Learning Resources for module correlation and annotation.			
GEP	<i>Primer on Environmental Citizenship,</i> A. Agincourt, ON: Gage Educational Publishing Co., 1993. Resource Book. The goal of this document is to help Canadians to make environmentally responsible decisions. The book provides short informational anecdotes, maps and charts, and questions/answers concerning people becoming environmentally conscious citizens. The book includes information on ecological processes, relationships of human societies with the environment, and key environmental issues that Canadians face today. The book is one of a series of Environmental Citizenship Primers.	111	213	301 302 311 313
SSC	<i>Primer on Water,</i> A. Ottawa, ON: Environment Canada, 1990. Resource Book. This primer was developed to answer a wide range of questions about water. The resource covers a range of topics, e.g., water (general), underground water, water uses, water quality, water sharing, water management, water do's and don'ts. The primer contains practical advice on what individuals can do to conserve water for the use of present and future generations.	111		301 311 313
LRDC	<i>Soil Science & Management.</i> (2nd edition.) Edward J. Plaster. Albany, NY: Delmar Publishers Inc., 1992. Instructor's Guide. This resource addresses the importance of soil, soil origin and development, physical properties of soil, soil water, water conservation, irrigation and drainage, organic matter, soil fertility, soil pH and salinity, plant nutrition, soil sampling and testing, fertilizers, organic amendments, tillage and cropping systems, horticulture uses of soils, soil classification and soil conservation. This is an American publication and does not provide references to Canada.		203 212	303 312 313

Teaching Resources (continued)

Distributor Code	Resources	Levels/Module No.		
		1	2	3
LRDC	<i>Soils Investigations 1 and 2</i>. Ed Toews, Bill Souster and Doug Peters. Olds, AB: Land Sciences Centre, Olds College, 1993. Facilitator's Manual. This manual is intended to be used with <i>Soils Investigations 1 and 2</i> basic student resources. Includes approximately 25 pages of teaching notes and assignment answer keys, and 50 pages of sample test items. The manual also provides information about required laboratory equipment and provides a supplementary list of print and video resources.		212	312
LRDC	<i>Soils Investigations 1 and 2</i>. Olds, AB: Land Sciences Centre, Olds College, 1994. Materials Kit. The materials kit contains consumable and non-consumable items not usually found in a science lab that are required to conduct laboratory activities suggested in <i>Soils Investigation 1 and 2</i> (modules and assignment booklets). The kit includes a videotape of different soil formations and profiles, soil and fertilizer samples, soil survey maps and reports, and a Munsell Colour Chart. A materials replenishment kit for consumable items is available.		212	312
LRDC	<i>Space Age Agriculture: Land and Life</i>. Edmonton, AB: Alberta Agriculture, 1987. Handbook. This teacher handbook includes lesson plans, notes on teaching strategies and general information about the agriculture industry. The primary goal of all activities is to promote awareness of agriculture in Alberta, and of current production, processing and distribution systems.	101 102 103 106 109 110 111		

THEME CODE:	FORMAT CODE:	STATUS CODE:	LEVEL CODE:	JUNIOR/SENIOR HIGH
A. Social & Cultural Perspectives	<i>p</i> - Print	<i>B</i> - Basic	1 - Introductory	J - Junior High
B. Technology & Applications	<i>v</i> - Video	<i>S</i> - Support	2 - Intermediate	S - Senior High
C. Management & Conservation	<i>s</i> - Software	<i>T</i> - Teaching	3 - Advanced	

Agriculture /1.12
(Interim 1994)

AGRICULTURE RESOURCES

[illegible]

THEME CODE:	FORMAT CODE:	STATUS CODE:	LEVEL CODE:	JUNIOR/SENIOR HIGH
A. Social & Cultural Perspectives	<i>p</i> - Print	<i>B</i> - Basic	1 - Introductory	J - Junior High
B. Technology & Applications	<i>v</i> - Video	<i>S</i> - Support	2 - Intermediate	S - Senior High
C. Management & Conservation	<i>s</i> - Software	<i>T</i> - Teaching	3 - Advanced	

Agriculture /I.14
(Interim 1994)

AGRICULTURE RESOURCES

[illegible]

AGRICULTURE RESOURCES

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AGRICULTURE RESOURCES

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OTHER RESOURCES

These titles are provided as a service only to assist local jurisdictions to identify resources that contain potentially useful ideas for teachers. Alberta Education has done a preliminary review of the resources. However, the responsibility to evaluate these resources prior to selection rests with the user, in accordance with any existing local policy.

Distributor Code	Other Resources
AGP	<i>Agriculture in Alberta.</i> Edmonton, AB: Alberta Agriculture, Print Media Branch, 1993. Booklet.
LRDC	<i>Agriscience Fundamentals and Applications.</i> Elmer L. Cooper. Albany, NY: Delmar Publishers Inc., 1990. Textbook.
AGP	<i>Agroclimatic Atlas of Alberta.</i> Edmonton, AB: Alberta Agriculture, Print Media Branch, 1990. Booklet.
ACC	<i>Alberta: A Good Place For Agriculture.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1989. Videotape.
AGP	<i>Alberta Forage Manual.</i> Edmonton, AB: Alberta Agriculture, Print Media Branch, 1992. Manual.
AGP	<i>Alberta Horticultural Guide.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, 1994. Booklet.
DNC	<i>Amazing Milk Book, The.</i> Catherine Ross and Susan Wallace. Toronto, ON: Kids Can Press Ltd., 1991. Textbook.
AGME	<i>Animal Welfare - It's Your Responsibility.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1990. Videotape.
PBI	<i>Bedding Plant Expert, The.</i> D.G. Hessayon. Britannica House, Waltham Cross, Herts, England: PBI Publications, 1992. Textbook.
AGME	<i>Bovine Madness.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1992. Videotape.
CCC	<i>Canada's Canola.</i> W.J. Miller. Winnipeg, MB: Canola Council of Canada. Booklet.
AGE	<i>Career Connections.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Education and Community Services Branch. Poster.

Other Resources (continued)

Distributor Code	Other Resources
ACC	<i>Careers in Agriculture</i> . Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1985. Videotape.
ENED	<i>Caring For the Land Teaching Kit</i> (Grades 7-9). Edmonton, AB: Alberta Environmental Protection, Education Branch, 1993. Teacher's guide and student material.
ACC	<i>Cattle Option</i> . Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1986. Videotape.
AGME	<i>Farm Conservation Planning</i> . Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1991. Videotape.
AGP	<i>Farm Energy Management in Alberta</i> . Edmonton, AB: Alberta Agriculture, Food and Rural Development, Engineering and Rural Services Division. Booklet.
OUP	<i>Farm Machinery</i> . (12th edition.) Claude Culpin. Don Mills, ON: Oxford University Press, 1992. Textbook.
CTV	<i>Farmer Buck: W5 Series</i> . Toronto, ON: CTV Television Network Ltd., 1992. Videotape.
SSC	<i>Farming Facts 1996: Statistical Insights on Canadian Agriculture</i> . Ottawa, ON: Statistics Canada, 1993. Booklet update annually
AGP	<i>Field Shelter Belts for Soil Conservation</i> . Edmonton, AB: Alberta Agriculture, Print Media Branch, 1992. Booklet.
FREI	<i>Florist Review, The</i> . Frances Porterfield. Topeka, KS: Florists' Review Enterprises Incorporated, 1988. Periodical.
ENED	<i>Focus On Series</i> (<i>Acidic Deposition, Air Quality, Environment, Greenhouse Effect, Land Reclamation, Ozone Depletion, Pesticides, Pollution, Recycling, Water Conservation</i>). Edmonton, AB: Alberta Environmental Protection, Education Branch. Booklets.
OFAC	<i>Food For Thought: Facts About Food and Farming in Canada</i> . Alan Herscovici. Mississauga, ON: Ontario Farm Animal Council. Brochure.
ACC	<i>Gone With the Wind ... Too?</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1984. Videotape.

Other Resources (continued)

Distributor Code	Other Resources
AGME	<i>Green Cow, The.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1993. Videotape.
PBC	<i>Green Future: How To Make A World of Difference.</i> Lorraine Johnson. Markham, ON: Penguin Books, 1990. Textbook.
BBC	<i>Guess What's Coming to Dinner.</i> Toronto, ON: BBC Education and Training Sales, 1990. Videotape.
ECA	<i>Household Hazardous Wastes Handbook, The.</i> Edmonton, AB: Alberta Special Waste Management Corporation, 1991. Booklet.
PBI	<i>Houseplant Expert, The.</i> D.G. Hessayon. Britannica House, Waltham Cross, Herts, England: PBI Publications. Textbook.
OCV	<i>How Green Is Your School?</i> Don E. McAllister. Ottawa, ON: Ocean Voice, 1991. Booklet.
AGME	<i>In Balance With Nature.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1991. Videotape.
ENED	<i>Land Conservation Education Program. (Readings Grades 10–12.)</i> Edmonton, AB: Alberta Environmental Protection, Education Branch. Booklet.
NEL	<i>Land Use and Abuse.</i> Terri Willis. Chicago, IL: Childrens Press, 1992. Textbook.
OAF	<i>Looking At Food Systems (The Transition Years, Grades 7–9).</i> Milton, ON: Ontario Agri-Food Education Inc., 1993. Teacher resource booklet.
ACC	<i>Magic of Water, The.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and Century II Motion Pictures, 1975. Videotape.
AGME	<i>Matter of Soil, A.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1985. Videotape.

Other Resources (continued)

Distributor Code	Other Resources
NEL	<i>Modern Livestock and Poultry Production.</i> (4th edition.) James R. Gillespie. Albany, NY: Delmar Publishers Inc., 1992. Textbook.
ACC	<i>Oh Gully - Where is the Soil?</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and Tustian Film Productions, 1983. Videotape.
GCF	<i>On the Line.</i> Glenwood, AB: Glenwood Cheese Factory and Food Processors' Institute, 1985. Videotape.
NEL	<i>Ornamental Horticulture: Principles and Applications.</i> Jack Ingels. Albany, NY: Delmar Publishers Inc., 1985. Student textbook.
ACC	<i>Pest Wars.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1984. Videotape.
ENED	<i>Pesticide Education Program.</i> Edmonton, AB: Alberta Environmental Protection, Education Branch. Teacher resource booklet, resource sheets and student materials.
SSC	<i>Prairie Soils: The Case for Conservation.</i> Regina, SK: Prairie Farm Rehabilitation Administration, 1989. Booklet.
SSC	<i>Primer on Fresh Water, A.</i> Ottawa, ON: Minister of the Environment, Minister of Supply and Services Canada, 1993. Teacher guide book.
SSC	<i>Primer on Waste Management, A.</i> Ottawa, ON: Environment Canada, 1993. Booklet.
ACC	<i>Reason Why, The.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and Century II Motion Pictures, 1983. Videotape.
SSC	<i>Recommended Code of Practice for the Care & Handling of Farm Animals.</i> Ottawa, ON: Agriculture Canada, 1991. Booklet series.
CFI	<i>Role of Fertilizers in Sustainable Agriculture and Food Production, The.</i> Ottawa, ON: Canadian Fertilizer Institute, 1990. Booklet.
AGME	<i>Salt Woes.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1986. Videotape.

Other Resources (continued)

Distributor Code	Other Resources
ACC	<i>Sense of Humus, A.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and National Film Board, 1976. Videotape.
AGME	<i>Space Age Agriculture.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1990. Videotape.
AGP	<i>Story of Soil and Water Conservation in Alberta, The.</i> Alberta Agriculture, 1989. Booklet.
ACC	<i>Sun Changers, The.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and Elanco Division, Eli Lilly, 1978. Videotape.
AGME	<i>Urge to Till, The.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch and Image Works, 1990. Videotape.
ENED	<i>Water In Alberta: The Living Flow.</i> Edmonton, AB: Alberta Environmental Protection, Education Branch, 1993. Teacher resource kit.
EPPC	<i>Water Management in Alberta.</i> Edmonton, AB: Alberta Environment, 1991. Booklet.
LRDC	<i>Water Quality Questions: The Nature and Importance of Water Quality Variables in Alberta.</i> Edmonton, AB: Alberta Environmental Protection, Education Branch, 1990. Teacher guide and student booklet.
ACC	<i>Water Water: Making the Most of Moisture.</i> Edmonton, AB: Alberta Agriculture, Food and Rural Development, Broadcast Media Branch, 1988. Videotape.
AGP	<i>Weed Seedling Identification.</i> Edmonton, AB: Alberta Agriculture, Print Media Branch, 1990. Booklet.

ADDITIONAL RESOURCES

Available to Agriculture teachers, both locally and provincially, are many resources that can be used to enhance Career and Technology Studies. These sources are available through the community, government agencies, resource centres and organizations. Some of these sources, e.g., government departments, undergo frequent name and/or telephone number changes. Please consult your telephone directory or an appropriate government directory.

The following is a partial list of sources to consider:

TEACHER-LIBRARIANS

Planned and purposeful use of library resources helps students grow in their ability to gather, process and share information. Research activities require access to an adequate quantity and variety of appropriate, up-to-date print and nonprint resources from the school library, other libraries, the community and additional sources. Some techniques to consider are:

- planning together
- establishing specific objectives
- integrating research skills into planning.

Cooperation between the teacher-librarian and the subject area teacher in the development of effectively planned resource-based research activities ensures that students are taught the research skills as well as the subject content.

Also see *Focus on Research: A Guide to Developing Student's Research Skills* referenced in the Alberta Education Resources section.

ALBERTA EDUCATION SOURCES

The following monographs are available for purchase from:

Learning Resource Distributing Centre
12360 – 142 Street
Edmonton, AB
T5L 4X9
Telephone: 427-2767
Fax: 422-9750

Please consult the "Support Documents" section or the "Legal, Service and Information Publications" section in the *Buyers Guide* for ordering information and costs.

Developmental Framework Documents

- *The Emerging Student: Relationships Among the Cognitive, Social and Physical Domains of Development*, 1991

This document looks at the whole child, or student, as a productive learner, integrating all the domains of development: cognitive, social and physical. It emphasizes the need for providing balanced curriculum and instruction.

- *Students' Interactions Developmental Framework: The Social Sphere*, 1988

This document focuses on the student as a social being. It looks at the student's affective or emotional growth and examines moral development. These three domains make up the social sphere.

- *Students' Physical Growth: Developmental Framework Physical Dimension*, 1988

This document examines children's normal physical growth in three areas: perceptual, structural and motor development. In none of these areas is the child's growth in a single continuous curve throughout the first two decades of life. Physical growth is characterized by periods of rapid growth and periods of slower growth. Consequently, differences and changes in growth patterns may affect the timing of certain learning processes.

Students' Thinking: Developmental Framework Cognitive Domain, 1987

This document explores children's cognitive development from infancy to adolescence. The Piagetian stages of pre-operational, concrete operational and formal operational thinking are explained. Suggestions for improving the learning process are also presented.

Others

- *Focus on Research: A Guide to Developing Students' Research Skills*, 1990

This document outlines a resource-based research model that helps students manage information efficiently and effectively, and in this process, to gain skills that are transferable to all school and work situations. This model provides a developmental approach to teaching students how to do research.

- *Teaching Thinking: Enhancing Learning*, 1990

Principles and guidelines for cultivating thinking, ECS to Grade 12, have been developed in this resource. It offers a definition of thinking, describes nine basic principles on which the suggested practices are based, and discusses possible procedures for implementation in schools and classrooms.

OTHER GOVERNMENT SOURCES

ACCESS Network

ACCESS Network offers a variety of resource and services to teachers. For a nominal dubbing and tape fee, teachers may have ACCESS Network audio and video library tapes copied.

ACCESS Network publishes a listing of audio and video cassettes as well as a comprehensive programming schedule.

Of particular interest are the Career and Technology Studies videos, which are available with teacher utilization guides. The guides outline key points in each video and suggest questions for discussion, classroom projects and

other activities. Video topics are listed in the Support Learning Resources section of this Guide. The videos and accompanying support material can be obtained from:

ACCESS Network
3720 – 76 Avenue
Edmonton, AB
T5B 2N9
Telephone: 440-7777 (in Edmonton)
1-800-352-8293
(outside Edmonton)

Agriculture and Agri-Food Canada
Food Production and Inspection Branch
11713 – 82 Street
Edmonton, AB
T5B 2V9
Telephone: 495-5577
Fax: 495-3359

Or

474, 220 – 4 Avenue SE
Calgary, AB
T2G 4X3
Telephone: 292-4327
Fax: 292-6132

Or

102, 3650 – 36 Street NW
Calgary, AB
T2L 2L1
Telephone: 289-7736
Fax: 221-3296

Labelling Division
11713 – 82 Street
Edmonton, AB
T5B 2V9
Telephone: 495-7287
Fax: 495-6451

Or

102, 3650 – 36 Street NW
Calgary, AB
T2L 2L1
Telephone: 289-7736
Fax: 221-3296

Agriculture Canada
Communications Branch
Ottawa, ON
K1A 0C7
Telephone: (819) 994-0246

General and Technical Publications (a comprehensive listing of free and inexpensive print materials on a variety of topics in agriculture; updated each year).

Alberta Advanced Education and Career Development

Information Development and Marketing
9th Floor, City Centre Building
10155 - 102 Street
Edmonton, AB
T5J 4L5
Telephone: 422-1794
Fax: 422-5126

Career Information Catalogue Update, 1994
The Career Planner
Children Challenges Choice
Entrepreneur: A Big Word for Small Business
Rural Women as Business Entrepreneurs
Positive Works
Skills are your Passport.

Videos on career planning and entrepreneurial topics are available through the library of this department. Call 422-4752 for more information. The following videos are representative of the library's holdings:

The Entrepreneur
Get a Job
A Head for Business
The Seven Phases of a Job Interview.

Alberta Agriculture, Food and Rural Development

Print Media Branch
7000 - 113 Street
Edmonton, AB
T6H 5T6
Telephone: 427-2121
Fax: 427-2861

Publications List (a comprehensive listing of free and inexpensive print materials on a variety of topics in agriculture; updated each year).

Broadcast Media Branch
7000 - 113 Street

Edmonton, AB
T6H 5T6
Telephone: 427-2127
Fax: 427-2861

Audio Visual Catalogue (an annotated listing of films and videos available for loan upon request; updated each year).

Agricultural Education and Community Services Branch

2nd Floor, 7000 - 113 Street
Edmonton, AB
T6H 5T6
Telephone: 427-2171
Fax: 438-3362

Agriculture Ambassador Program
Agriculture in the Classroom Program
Agriculture Summer Institute
Farm Safety Program
Green Certificate Farm Training Program
Home Study Program.

Alberta Tree Nursery and Horticulture Centre
RR #6
Edmonton, AB
T5B 4K3
Telephone: 422-1789
Fax 427-6096

Home Economics and 4-H Branch
2nd Floor, 7000 - 113 Street
Edmonton, AB
T6H 5T6
Telephone: 427-2412
Fax:

4-H Project Materials
Handling Pesticides: Are You Protected
Protective Clothing For Farm Welders.

Alberta Economic Development and Tourism
Strategic Planning and Research
9th Floor, Sterling Place
9940 - 106 Street
Edmonton, AB
T5K 2N2
Telephone: 422-9494
Fax: 422-5922

Financing a Small Business
Marketing a Small Business
Starting a Small Business.

Alberta Environmental Protection

Education Branch
12th Floor, 9820 – 106 Street
Edmonton, AB
T5K 2J6
Telephone: 427-6310
Fax: 427-2512
Land Conservation Education Program
Pesticide Education Program
The Water Literacy Program
Focus On Series
Poster Education Series
(Workshops and presentations on these program materials can be arranged.)

Alberta Health

Environmental Health Services
10030 – 107 Street
Edmonton, AB
T5J 3E4
Telephone: 427-2643

Alberta Health will issue a Certificate of Achievement in Food Sanitation and Hygiene to all successful applicants. The department also maintains a registry of certified food handlers.

Alberta Labour

9940 – 106 Street
Edmonton, AB
T5K 2N2
Telephone: 427-8848

Employment Standards Code (Teacher resource package).

Alberta Labour offices are also in Calgary, Camrose, Edson, Fort McMurray, Grande Prairie, Lethbridge, Medicine Hat, Red Deer and Vermillion.

Alberta Tourism Education Council (ATEC)

12th Floor, Sterling Place
9940 – 106 Street
Edmonton, AB
T5K 2N2
Telephone: 422-0781
Fax: 422-3430
Info Line: 1-800-265-1283

Community Health & Nutrition

Family Health Services
5th Floor, Seventh Street Plaza
10030 – 107 Street
Edmonton, AB
T5J 3E4

Energy Conservation and Renewable Energy

Western Regional Office
200 Grandin Park Plaza
22 Winston Churchill Avenue
St. Albert, AB
T8N 1B4

Or

Regional Communications
355, 200 – 4 Avenue SE
Calgary, AB
T2G 4X3

Environment Canada

Inquiry Centre
10 Wellington Street, 1st Floor
Hull, PQ
K1A 0H3
Telephone: (819) 997-2800
Fax: (613) 953-2225

Or

Communications Directorate
Western and Northern Region
Room 210, 4999 – 98 Avenue
Edmonton, AB
T6B 2X3
Telephone: 468-8075
Fax: 495-2478

Environmental Council of Alberta

400, 9925 – 109 Street
Edmonton, AB
T5K 2J8
Telephone: 427-5792
Fax: 427-0388

Fisheries and Oceans Canada

9021 – 46 Street
Edmonton, AB T6B 3B2
Telephone: 495-7023
Fax: 495-7022
Or

102, 2938 – 11 Street NE
Calgary, AB
T2E 7L7
Telephone: 292-5858
Fax: 292-6088

Health Canada

Publications
Public Affairs, Head Office
Brooke Claxton Building
de la Colombine
Tunney's Pasture
Ottawa, ON
K1A 0K9

Health Protection Branch

840, 9700 Jasper Avenue
Edmonton, AB
T5J 4C3
Telephone: 495-2626
Fax: 495-2624

Or

282, 220 – 4 Avenue SE
Calgary, AB
T2G 4X3
Telephone: 292-4650
Fax: 292-4644

Industry and Science Canada

Consumer Affairs
10225 – 100 Avenue
Edmonton, AB
T5J 0A1
Telephone: 495-2485
Fax: 495-6451

Or

301, 510 – 12 Avenue SW
Calgary, AB
T2R 0H3
Telephone: 292-5604
Fax: 292-6175

National Film Board of Canada (NFB)

The NFB has numerous films and videotapes that may be suitable for Agriculture. For a list of NFB films and videotapes indexed by title, subject and director, or for rental or purchase of NFB films and videotapes, call 1-800-267-7710 (toll-free).

Educational Marketing Officers in Calgary and Edmonton are available, province wide, for workshops, conferences, professional development days and similar activities. For northern Alberta and the Northwest Territories, the Educational Marketing Officer can be reached at 495-3012 (fax, 495-6412). For southern Alberta, contact the Educational Marketing Officer at 292-5411 (fax, 292-5458).

ACCESS Network and some school boards have acquired duplication rights to some NFB videotapes. Please consult the relevant catalogues in your school or school district.

The Calgary Public Library has a selection of NFB films and videotapes that can be borrowed free of charge with a Calgary Public Library borrower's card. For further information, contact:

Calgary Public Library
Films and Recordings Department
616 Macleod Trail SE
Calgary, AB
T2G 2M2
Telephone: 260-2650
Fax: 292-5458

Resource Centres

Urban Resource Centres

Calgary Board of Education
Supervisor, Education Media
3610 – 9 Street SE
Calgary, AB
T2G 3C5
Telephone: 294-8540
Fax: 287-9739

Calgary Separate School Board
Supervisor, Instructional Materials
1000 – 5 Avenue SW
Calgary, AB
T2P 4T9
Telephone: 246-6663
Fax: 249-3054

County of Strathcona
Director, Learning Resource Service
2001 Sherwood Drive
Sherwood Park, AB
T8A 3W7

Edmonton Public School Board
Learning Resource Consultant
Centre for Education
One Kingsway Avenue
Edmonton, AB
T5H 4G9
Telephone: 429-8320
Fax: 429-8318

Lakeland School District No. 5460
Area Superintendent
Postal Bag 1001
6005 - 50 Avenue
Bonnyville, AB
T9N 2L4
Telephone: 826-3145
Fax: 826-4600

Medicine Hat School District No. 76
IMC Manager
601 - 1 Avenue SW
Medicine Hat, AB
T1A 4Y7
Telephone: 526-1323
Fax: 529-5339

Red Deer Public School Board
Coordinator of Instruction
4747 - 53 Street
Red Deer, AB
T4N 2E6
Telephone: 343-1405
Fax: 347-8190

St. Anthony's Teacher Centre
Supervisor, Curricular Resources
10425 - 84 Avenue
Edmonton, AB
T6E 2H3
Telephone: 439-7356
Fax: 433-0181

Regional Resource Centres

Zone I

Zone I Regional Resource Centre
Film Supervisor
10020 - 101 Street
P.O. Box 6536
Peace River, AB
T8S 1S3
Telephone: 624-3187
Fax: 624-5941

Zone II and III

Central Alberta Media Services (CAMS)
Film Supervisor
182 Sioux Road
Sherwood Park, AB
T8A 3K5
Telephone: 464-5540
Fax: 467-5469

Zone IV

Alberta Central Regional Education
Services (ACRES)
Operations Manager
County of Lacombe
Parkland Regional Library Building
56 Avenue and 53 Street Corner
Box 3220
Lacombe, AB
T0C 1S0
Telephone: 782-5730
Fax: 782-5831

Zone V

South Central Alberta Resource Centre
(SCARC)
c/o County of Wheatland
435 B Hwy #1
Strathmore, AB
T1P 1J4
Telephone: 934-5028
Fax: 934-4889

Zone VI

Southern Alberta Learning Resource Centre
(SALRC)
Film Supervisor
Provincial Government Administration
Building
120, 909 Third Avenue North
Box 845
Lethbridge, AB
T1J 3Z8
Telephone: 320-7807
Fax: 320-7817

Statistics Canada

Regional Office
8th Floor, Park Square
10001 Bellamy Hill
Edmonton, AB
T5J 3B6
Telephone: 495-3023
Fax: 495-5318

PROFESSIONAL ASSOCIATIONS

Alberta Association of Landscape Architects

370, 4445 Calgary Trail
Edmonton, AB
T6H 5R7

Alberta Society of Professional Biologists

Box 566
Edmonton, AB
T5J 2K8

Alberta Teachers' Association

(Specialist Council)
Environmental and Outdoor Education
Barnett House
11010 - 142 Street
Edmonton, AB
T5N 2R1

Alberta Veterinary Medical Association

100, 8615 - 149 Street
Edmonton, AB
T5R 1B3

Canadian Association of Agricultural Engineers

Box 306, Sub Post Office 6
Saskatoon, SK
S7N 0W8

Canadian Association of Plant Physiologists

c/o Department of Botany
University of Guelph
Guelph, ON
N1G 2W1

Canadian Botanical Association

Agriculture Canada
Biosystems Research Centre
Saunders Building, CDF
Ottawa, ON
K1A 0C6

Canadian Society of Environmental Biologists

Box 962 Postal Station F
Toronto, ON
M4Y 2N9

INDUSTRY ORGANIZATIONS

Dairy

Alberta Agricultural Dairy Control Board

Provincial Building
5201 - 50 Avenue
Wetaskiwin, AB
T9A 0S7
Telephone: 361-1231

Alberta Dairy Association

Box 3452
Leduc, AB
T9E 6M2
Telephone: 387-3559
Fax: 387-5398

Alberta Goat Breeders Association

RR #4
Calmar, AB
T0C 0V0
Telephone: 985-3863

Alberta Holstein Association

5239 - 41 Street
Innisfail, AB
T0M 1A0

Alberta Milk Producers Society

14904 - 121A Avenue
Edmonton, AB
T5V 1A3
Telephone: 453-5942
Fax: 455-2196

Dairy Nutrition Council of Alberta

14904 – 121A Avenue
Edmonton, AB T5V 1A3

Fruits and Vegetables**Alberta Fresh Vegetable Marketing Board**

220E – 12 Street A North
Lethbridge, AB T1H 2J1
Telephone: 327-0447
Fax: 327-0766

Alberta Greenhouse Growers Association

RR #1
Red Deer, AB
T4N 5E1
Telephone: 347-4714
Fax: 346-6979

Alberta Market Gardeners' Association

c/o ASCHRC,
SS #4
Brooks, AB
T1R 1E6
Telephone: 921-2272
Fax: 921-2398

Alberta Vegetable Growers Marketing Board

Box 2273
Taber, AB
T0K 2G0
Telephone: 223-4242
Fax: 223-3130

Fruit Growers Society of Alberta

Box 668
Calmar, AB
T0C 0V0
Telephone: 224-3011
Fax: 224-2096

Potato Growers of Alberta

240, 2116 – 27 Avenue NE
Calgary, AB
T2E 7A6
Telephone: 291-2430
Fax: 291-2641

Grains**Alberta Barley Commission**

321, 2116 – 27 Avenue NE
Calgary, AB
T2E 7A6
Telephone: 291-9111
Fax: 291-0190

Alberta Corn Committee

Box 822
Lethbridge, AB
T1J 3Z8
Telephone: 327-4561
Fax: 328-3156

Alberta Soft Wheat Producers Commission

Box 875,
1014 – 3 Avenue N
Lethbridge, AB
T1J 3Z8
Telephone: 380-4189
Fax: 328-6880

Alberta Winter Wheat Producers Commission

1205 Michigan Place S
Lethbridge, AB
T1K 3P4
Telephone: 328-0059
Fax: 328-0969

Canadian Seed Growers' Association

Bag Service #47
Lacombe, AB
T0C 1S0

The Grain Academy

Box 2700
Calgary, AB
T2A 4G6
Telephone: 263-4594

Oat Producers Association of Alberta

PO Box 1595
Edmonton, AB
T5J 2N9
Telephone: 444-0066

Western Barley Growers Association

232, 2116 – 27 Avenue NE
Calgary, AB
T2E 7A6
Telephone: 291-3630
Fax: 291-9841

Honey**The Alberta Beekeepers Association**

16715 – 113 Avenue
Edmonton, AB
T5M 2X2
Telephone: 489-6949
Fax: 489-3041

South Peace Honey Ltd.

Box 574
Falher, AB
T0H 1M0
Telephone: 925-2396

Tegert Comb Foundation

Box 904
Fairview, AB
T0H 1L0
Telephone: 835-2115
Fax: 835-2873

Williams Bee Ranch

Box 264
Stavely, AB
T0L 1Z0
Telephone: 549-3999

Willms Honey Producers Ltd.

Box 8
Scandia, AB
T0J 2Z0
Telephone: 362-3951
Fax: 362-8990

Wolfe Honey Co.

Box 92
Falher, AB
T0H 1M0
Telephone: 925-2463

Meat**Alberta Angus Association**

Box 605
Red Deer, AB
T4N 5G6
Telephone: 346-0221

Alberta Cattle Commission

216, 6715 – 8 Street NE
Calgary, AB
T2E 7H7
Telephone: 286-7143
Fax: 274-0007

Alberta Meat Processors Association

13 – 21215 Wye Road
Sherwood Park, AB
T8G 1C8
Telephone: 922-2170
Fax: 922-2219

Alberta Pork Producers Development Corp.

10319 Princess Elizabeth Avenue
Edmonton, AB
T5G 0Y5
Telephone: 474-8288
Fax: 471-8065

Alberta Sheep and Wool Commission

212, 6715 – 8 Street NE
Calgary, AB
T2E 7H7
Telephone: 295-1988
Fax: 275-8009

Beef Information Centre

215, 6715 – 8 Street NE
Calgary, AB
T2E 7H7
Telephone: 275-5890
Fax: 274-5686

Canada Beef Export Federation

235, 6715 – 8 Street NE
Calgary, AB
T2E 7H7
Telephone: 274-0005
Fax: 274-7275

Canada Pork International

1101, 75 Albert Street
Ottawa, ON
K1P 5E7
Telephone: (613)236-9886
Fax: (613)236-6658

Canadian Cattlemens' Association

215, 6715 – 8 Street NE
Calgary, AB
T2E 7H7
Telephone: 275-8558
Fax: 274-5686

Canadian Charolais Association

2320 – 41 Avenue NE
Calgary, AB
T2E 6W8

Canadian Hereford Association

Communications
5160 Skyline Way NE
Calgary, AB
T2E 6B1

Oilseeds**Alberta Canola Producers Commission**

170, 14315 – 118 Avenue
Edmonton, AB T5L 4S6
Telephone: 452-6487
Fax: 451-6933

Alberta Safflower Growers Association

Box 419
Warner, AB
T0K 2L0
Telephone: 624-2134

Canola Council of Canada

301 – 433 Main Street
Winnipeg, MB
R3B 1B3
Telephone: (204) 982-2100
Fax: (204) 942-1841

Poultry**Alberta Chicken Producers Marketing Board**

11826 – 100 Avenue
Edmonton, AB
T5K 0K3
Telephone: 488-2125
Fax: 488-3570

Alberta Egg Producers Board

15, 1915 – 32 Avenue NE
Calgary, AB
T2E 7C8
Telephone: 250-1197
Fax: 291-9216

Alberta Hatching Egg Marketing Board

14815 – 119 Avenue
Edmonton, AB
T5L 2N9
Telephone: 451-5837
Fax: 452-8726

Alberta Turkey Growers Marketing Board

202, 8711A – 50 Street
Edmonton, AB
T6B 1E7
Telephone: 465-5755
Fax: 465-5528

Specialty Productions**Canadian Organic Growers**

Box 6408, Station J
Ottawa, ON
K2A 3Y6

Alberta Ostrich Breeders' Association

RR #4
Rimbey, AB
T0C 2J0
Telephone: 748-2636
Fax: 748-2636
Alberta Pulse Growers Commission
Bag Service 47
Lacombe, AB
T0C 1S0
Telephone: 782-7838

Alberta Wild Rice Growers Association

c/o 11708 – 167 Street
Edmonton, AB
T5M 3Z2
Telephone: 455-9909
Fax: 455-0215

Alberta Venison Council

Box 3299
Spruce Grove, AB
T7X 3A6
Telephone: 962-6212

Floral

Edmonton and District Florists' Association

8624 - 119 Avenue
Edmonton, AB
T5O 0W5

Flowers Canada

(The Association of Canadian Florists)
Flowers Canada Accreditation Program
400 Silvercreek Parkway. N
Guelph, ON
N1H 1E8
Telephone: (519) 823-2670
Fax: (519) 823-8920

Flowers Canada, AB Region

4936 50 Street
Camrose, AB
T4V 1R1
Telephone: 672-2553

Equine

Alberta Galloway Association

Box 1, Site 5, RR #1
DeWinton, AB T0L 0X0
Telephone: 850-0782
Fax: 938-7543

Canadian Morgan Horse Association

Box 286
Port Perry, ON
L9L 1A3

Miscellaneous

Alberta Special Waste Management Corp.

610, 10909 Jasper Avenue
Edmonton, AB
T5J 3L9
Telephone: 422-5029 or
1-800-272-8873
Fax: 428-9627

Alberta Sugar Beet Growers Marketing Board

4900 - 50 Street
Box 190
Taber, AB
T0K 2G0
Telephone: 223-1110
Fax: 223-1022

Alberta Wheat Pool

Farm Information Services
505, 2nd Street SW
Box 2700
Calgary, AB
T2P 2P5
Telephone: 290-5568
Fax: 290-5550

FIS in the Classroom (farm management simulation program).

Canadian Hays Converter Association

310, 4273 - 1st Street SW
Calgary, AB
T2G 4Y8

ENVIRONMENTAL FACILITIES

The following is a partial list of facilities that provide hands-on experience for students in aspects of resource management and environmental education. Contact should be made directly with the facility to obtain details of what is offered to school groups or students.

Alberta Forest Service Museum

Forest Technology School
1176 Switzer Drive
Hinton, AB
T0E 1B0
Telephone: 865-8211

Alberta Tree Nursery and Horticulture Centre

RR #6
17507 Fort Road
Edmonton, AB
T5B 4K3
Telephone: 422-1789 (in Edmonton)
198-5272 (toll free through any
government R.I.T.E. Operator)

Alford Lake Conservation Education Centre

c/o Fish and Wildlife Division
Box 369
Caroline, AB
T0M 0M0
Telephone: 722-2423

Bennett Environmental Education Centre
Edmonton Public Schools
9703 – 94 Street
Edmonton, AB
T6C 3W1
Telephone: 468–1439

Calgary Zoo
Botanical Gardens and Prehistoric Park
P.O. Box 3036, Station “B”
Calgary, AB
T2M 4R8
Telephone: 265–9310

Crowsnest Portable Camp
c/o Fish and Wildlife Division
200 Sloane Square
5920 – 1A Street SW
Calgary, AB
T2H 0G3
Telephone: 297–7639

Devonian Botanic Garden
University of Alberta
Edmonton, AB
T6G 2E1
Telephone: 987–3054

Energieum
(Energy Resources Conservation Board)
640 5 Avenue SW.
Calgary, AB
T2P 3G4
Telephone: 297–4293

Environmental Resource Centre
10511 Saskatchewan Drive
Edmonton, AB
T6E 4S1
Telephone: 433–4808

Fort Calgary Preservation Society
P.O. Box 2100, Station “M”, #106
Calgary, AB
T2P 2M5
Telephone: 290–1875

Ft. McMurray Oil Sands Interpretive Centre
515 MacKenzie Boulevard
Ft. McMurray, AB
T9H 4X3
Telephone: 743–7167

Glenbow Museum
130 – 9 Avenue SE
Calgary, AB
T2G 0P3
Telephone: 264–8300

John Janzen Nature Centre
P.O. Box 2359
Edmonton, AB
T5J 2R7
Telephone: 434–7446

Kananaskis Field Station
Coordinator of School Programs
Bio Sciences 186
University of Calgary
2500 University Drive NW
Calgary, AB
T2N 1N4
Telephone: 220–5355
Fax: 673–3671

McKinnon Flats Resource Education Centre
c/o Fish and Wildlife Division
200 Sloane Square
5920 1A Street SW
Calgary, AB
T2H 0G3
Telephone: 297–7639

Narrow Lake Conservation Education Centre
c/o Fish and Wildlife Division
Provincial Building
Athabasca, AB T0B 0B0
Telephone: 675–9137

OTHER AGENCIES

Alberta Debate and Speech Association
202, 17308 – 108 Avenue
Edmonton, AB
T5X 3Y8
Telephone: 484–7929
Fax: 484–2710

Alberta Foundation for Economic Education
901, 10179 – 105 Street
Edmonton, AB
T5J 1E2
Telephone: 421–9331
Fax: 426–2987

The Chartered Banks and Canada's Economy
Labour in the Canadian Economy (teacher resource)

Retail Marketing in Canada

Using Money Wisely.

Alberta Society for the Prevention of Cruelty to Animals

Education Coordinator
226, 3210 – 118 Avenue
Edmonton, AB
T5W 4W1
Telephone: 471–2020
Fax: 479–3267

School Programs (an outline of workshops, classroom visits and learning resources available)

Canadian Co-operative Association

400, 275 Bank Street
Ottawa, ON
K2P 2L6

Co-operative Entrepreneurship: A Case Study in Worker Ownership

Canadian Foundation for Economic Education

501, 2 St. Clair Avenue West
Toronto, ON
M4V 1L5
Telephone: (416) 968–2236
Fax: (416) 968–0488

Entrepreneurship: A Primer for Canadians (teacher resource)

Labour Market: Teacher's Resource Package (teacher resource)

Money and Youth

Women in the Work Force.

The Conference Board of Canada

255 Smyth Road
Ottawa, ON
K1H 8M7
Telephone: (613) 526–3280
Fax: (613) 526–4857

Economic Forecast: Provincial Outlook (research reports, personalized information services).

Ducks Unlimited Canada

1190 Waverly Street
Winnipeg, MB
R3T 2E2

FEESA

320, 9939 Jasper Avenue
Edmonton, AB
T5J 2X5
Telephone: 421–1497
Fax: 425–4506

FEESA offers education training and resource materials focusing on a variety of environmental and educational needs. Programs are developed in partnership with business, industry, government, environmental and education groups.

Junior Achievement of Northern Alberta

(Alberta north of Lacombe, and NWT)
161, 10700 – 104 Avenue
Edmonton, AB
T5J 4S2
Telephone: 428–1421
Fax: 428–1031

Junior Achievement of Southern Alberta

(Lacombe and south)
739 10 Avenue SW
Calgary, AB
T2R 0B3
Telephone: 263–2545
Fax: 261–6988

Materials are available only where Junior Achievement has identified community business consultants and provided inservice.

Kananaskis Country

Coordinator of Environmental Education
Box 280
Canmore, AB
T0L 0M0
Telephone: 678–5508

The Pembina Institute for Appropriate Development

P.O. Box 7558
Drayton Valley, AB
T0E 0M0
Telephone: 542–6272
Fax: 542–6464

*The Canadian Environmental Education
Catalogue.*

**Rural Education and Development
Association**

14815 – 119 Avenue

Edmonton, AB

T5L 2N9

Telephone: 451-5959

Fax: 452-5385

List of speakers for schools

*Several modules on cooperatives and farm
management*

Teacher resource package on cooperatives.

DISTRIBUTOR DIRECTORY

The entries in the distributor directory are arranged alphabetically by code.

CODE	Distributor/Address	Telephone/Fax
ACC	ACCESS Network 3270 – 76 Avenue Edmonton, AB T5B 2N9	(403) 440-7777 1-800-252-9363 Fax: 440-8899
AGE	Education and Community Services Branch Alberta Agriculture, Food and Rural Development 7000 – 113 Street Edmonton, AB T6H 5T6	(403) 427-2171 Fax: (403) 438-3362
AGME	Broadcast Media Branch Alberta Agriculture, Food and Rural Development 7000 – 113 Street Edmonton, AB T6H 5T6	(403) 427-2127 Fax: (403) 427-2861
AGP	Print Media Branch Alberta Agriculture, Food and Rural Development 7000 – 113 Street Edmonton, AB T6H 5T6	(403) 427-2171 Fax: (403) 427-2861
BBC	BBC Education and Training Sales 65 Heward Avenue Toronto, ON M4M 2T5	(416) 469-1505
CCC	Canola Council of Canada 301 – 433 Main Street Winnipeg, MB R3B 1B3	(204) 982-2100
CFI	Canadian Fertilizer Institute 1540, 360 Alberta Street Ottawa, ON K1R 7X7	(613) 230-2600
CTV	CTV Program and Archive Sales 42 Charles Street East Toronto, ON M4Y 1T5	(416) 928-6096

Distributor Directory (continued)

CODE	Distributor/Address	Telephone/Fax
DNC	Dairy Nutrition Council of Alberta 14904 – 121A Avenue Edmonton, AB T5V 1A3	(403) 453-5942
ECA	Environment Council of Alberta 8th Floor, Weber Centre 5555 Calgary Trail South Edmonton, AB T6H 5P9	427-5792
ENED	Alberta Environmental Protection, Education Branch 12th Floor, 9820 – 106 Street Edmonton, AB T5K 2J6	(403) 427-6310
EPPC	Environmental Protection Publications Centre 14th Floor, Oxbridge Place 9820 – 106 Street Edmonton, AB T5K 2J6	(403) 427-6132
FREI	Florists' Review Enterprises Inc. P.O. Box 4368 Topeka, KS USA 66604	(913) 266-0888
GEP	Gage Educational Publishing Company 164 Commander Blvd. Agincourt, ON M1S 3C7	(416) 293-8141
GCF	Glenwood Cheese Factory Glenwood, AB T0K 2R0	
GGE	Green and Growing Educational Projects 507, 63 Albert Street Winnipeg, MB R3B 1G4	(204) 957-1092 Fax: (204) 452-9748
LRDC	Learning Resources Distributing Centre 12360 – 142 Street Edmonton, AB T5L 4X9	(403) 427-2767

Distributor Directory (continued)

CODE	Distributor/Address	Telephone/Fax
NEL	Nelson Canada See LRDC Buyer's Guide for information	
OAE	Ontario Agri-Food Education Inc. 144 Chemin Town Line Road Box 460 Milton, ON L9T 4Z1	(905) 878-1510
OCV	Ocean Voice 2883 Otterson Drive Ottawa, ON K1V 7B2	(613) 996-9915
OFAC	Ontario Farm Animal Council 7195 Millcreek Drive Mississauga, ON L5N 4H1	
OUP	Oxford University Press See LRDC Buyers Guide for information	
PBC	Penguin Books 1220 Nicholson Road Hewmarket, ON L3Y 7V1	(905) 836-6730
PBI	PBI Publications Britannica House Waltham Cross Herts, England EN8DY	(0992) 23691
SSC	Canada Communications Group Place du Portage Phase 3 - 16A1 IL Laurier Street Hull, PQ K1A 0S5	(819) 956-4802

AGRICULTURE

SECTION J: SAMPLE STUDENT LEARNING GUIDES

(INTERIM, 1996)

TABLE OF CONTENTS

A student learning guide presents information and direction to help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher.

The student learning guides included in this section are organized as follows:

- Why take this module?
- What do you need to know before you start?
- What will you know and be able to do when you finish?
- When should your work be done?
- How will your mark for this module be determined?
- Which resources may you use?
- Activities/Worksheets

A student learning guide is not a self-contained learning package (e.g., Distance Learning Module), such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

SAMPLE STUDENT LEARNING GUIDES

Production Basics (AGR103)	J.1
Landscape and Turf Management (AGR206)	J.7
Floral Design II (AGR308).....	J.13

Production Basics (AGR103)**TAKE THIS MODULE?**

- This module is designed to allow you to explore techniques used in plant growth or animal production. Skills learned in this module can be applied to future studies and to produce a commodity for sale.

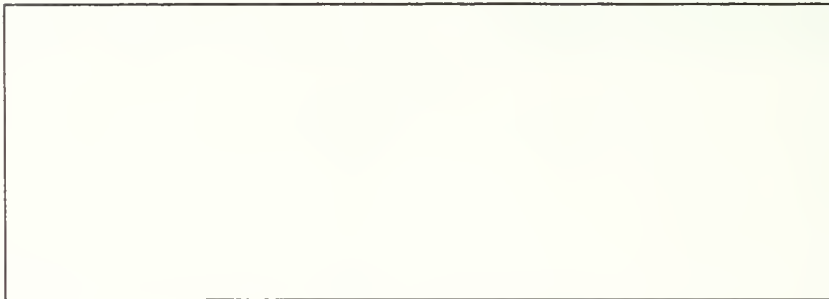
**DO YOU NEED TO KNOW
BEFORE YOU START?**

- No prerequisites required.

**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

- Recognition of facilities and equipment necessary to produce a plant or animal.
- Ability to plan and carry out a project that uses the facilities available to you.
- Keeping track of expenses incurred and estimating a selling cost of each commodity produced.
- Familiarity with a career related to a plant or animal.

SHOULD YOUR WORK BE DONE?



WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate all of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows: • Demonstration of production skills • Assignments from each section • Test	40% 40% 20%

RESOURCES MAY YOU USE?

- *Agriscience*: Fundamentals and Applications
- Seed catalogues.
- Nurseries catalogues.
- Equipment catalogues.

Production Basics (AGR103)**Section 1**

This section deals with an evaluation of the facilities and equipment that you have available for your use. This information is important for estimating the number of plants or animals that can be maintained within these areas. With your teacher's help, determine the equipment and areas, both indoors and outdoors, that will be available to you.

1. Draw a diagram of these areas. Include measurements in your drawing and calculate the available space in square metres.
2. Make a list of the equipment available and describe the function of each piece of equipment. It would be useful to include a drawing of the items you are not familiar with.

Section 2

With your teacher's help, decide which commodities you would like to produce.

If you choose INDOOR PLANTS, design a chart with the following categories and complete it as you carry out the project.

Name of Plant	Seeding Instruction	Transplanting Date
Size of Pot Used	Dates Fertilized	

If you choose OUTDOOR PLANTS, design a chart with the following categories and complete it as you carry out the project

Name of Plant	Seeding Instructions	Germination Date
Dates Fertilized	Date of Maturity	

As you carry out this project, keep a record of expenses. They will probably include:

1. seed cost
2. cost of growing medium
3. fertilizer cost
4. price of pots.

If you choose to RAISE ANIMALS, design a chart with the following categories and complete it as you carry out the project.

Name of Animal	Food Required	Frequency of Feeding
Dates for Cleaning Enclosure	Dates Exercised	

As you raise the animals, keep a record of the expenses. They will probably include:

1. initial cost of animals
2. food costs
3. cleaning costs
4. veterinary charges.

Production Basics (AGR103)**Section 3**

1. Calculate the costs for producing your plant or animal.
2. Calculate how much you will have to charge for each plant or animal in order to cover costs.
3. Find out how much professionals charge for similar plants or animals.
4. If appropriate, sell your commodity.

Section 4

The purpose of this section is to research and present certain aspects of a career involving plant or animal production. This information may be obtained from Alberta Agriculture, industries and businesses that are involved in these fields, and from career-related computer programs, government publications and periodicals. Your presentation should describe the nature of work usually performed, where it is done, and the skills you need for this type of work.

Landscape and Turf Management I (AGR206)**TAKE THIS MODULE?**

Successful landscape maintenance depends on the safe use of equipment and a basic knowledge of landscape plant materials. This module will give you experience with the tools and equipment used to maintain a landscape and the basic requirements of plant material in the landscape. Skills will be developed by providing practical on-site landscape services. You will also learn about lawn installation techniques.

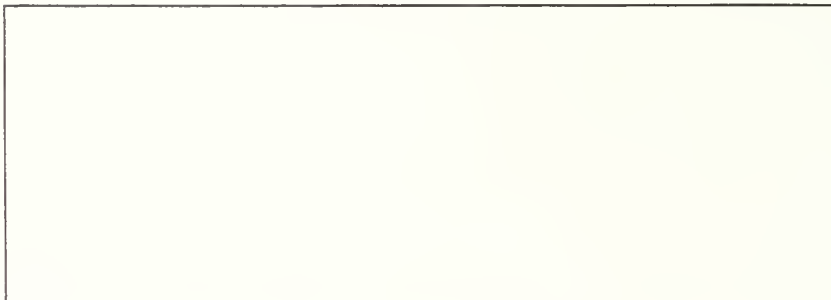
**DO YOU NEED TO KNOW
BEFORE YOU START?**

You should be able to:

- Work effectively and cooperatively with classmates.
- Follow a set of instructions given as part of a demonstration.
- Follow safety rules associated with activities and achieve a grade of 100% on the basic "Power Machine Safety Test".

Landscape and Turf Management I (AGR206)**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

- Recognize and describe the proper use of a push mower, lawn tractor, power edger, lawn vacuum, cord trimmer and leaf blower.
- Be able to start and safely operate at least three of the machines mentioned above.
- Recognize and describe the proper use of a hand trimmer, half-moon edger, lawn rake and weed puller.
- Demonstrate the proper use of each tool mentioned above.
- Understand and apply proper turf maintenance techniques including mowing, watering, trimming and edging, fertilizing and weed control to a residential and/or commercial turf area.
- Be able to identify five common lawn weeds.
- Identify the techniques for establishing a lawn.
- Recognize and describe the proper use of tools and equipment used to install and maintain basic landscape plants.
- Know the basic types of landscape plants and be able to identify 20 different landscape plants.
- Demonstrate knowledge of corrective pruning of trees and shrubs.
- Be familiar with and perform basic maintenance of planting beds.
- Perform proper seasonal practices of annual and perennial plantings.

SHOULD YOUR WORK BE DONE?

AGRICULTURE

Landscape and Turf Management I (AGR206)

WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate all of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows: • Practical • Theory • Work ethic	50% 40% 10%

RESOURCES MAY YOU USE?

- *Ornamental Horticultural Principles and Practices* (Ingels)
- University of Alberta Home Gardening Course (John Harapiak)
- *Alberta Horticulture Guide* (Alberta Agriculture)
- *The Lawn Expert* (Dr. D.G. Hessayon)
- *The Tree and Shrub Expert* (Dr. D.G. Hessayon)
- *The Bedding Plant Expert* (Dr. D.G. Hessayon)

Landscape and Turf Management I (AGR206)

Before beginning any practical work in this module, set up a number of pages in a logbook. The logbook pages are provided. Horticulturists in most areas keep daily records of activities and you will be required to fill in a space in the logbook for each activity that you complete.

- **Power Machines**
 - Obtain the owners manuals from the power machines you will be using. Read the manuals and use the information to fill in the “Maintenance Equipment Information Chart.”
 - Observe a demonstration of the use of the machine and make a check in the chart indicating that you have seen the demonstration.
 - Complete the “Lawn Maintenance Hand Tools Chart.”
- **Turf Maintenance**
 - Complete the worksheets on mowing, watering, trimming and edging.
 - While working on the maintenance worksheets or after completing them, practice using the machines you researched to provide basic maintenance for the lawns either around the school or for a private residence. Include mowing, trimming, edging, weed removal, sweeping and raking. You should provide the service through at least two mowings.
 - If you provide the service to a private residence, have the resident fill out a “service Sheet” for you outlining what work was done and on what dates.
 - Have your use of power machines evaluated. You must be able to demonstrate proper and safe use of a mower, power edger and power trimmer. Any other machines that you may have learned may also be evaluated at this time.
 - Observe a demonstration of a drop spreader and/or a broadcast spreader.
 - Complete the questions on lawn fertilizers.
 - Complete the questions and activities on lawn weeds. To do the lawn weeds chart you may be assigned an areas around the school or a residential area.
 - Provide basic maintenance requirements as necessary to a lawn area, including manual weed removal, removal of leaves and debris, application or fertilizer, watering, re-edging planting beds and use of hand trimmers in areas where power trimmers may be too damaging. The practice of these tasks will require you to use a number of hand tools you researched. You should be able to choose the correct tools necessary.

Landscape and Turf Management I (AGR206)

- **Lawn Establishment**
 - View the sections of the *Growing Beautiful Lawns* video dealing with site preparation, seeding, and sodding, and answer the questions on lawn establishment. Complete the small calculation activity.
 - Write the lawn maintenance quiz.
- **Landscape Tools**
 - Complete the landscape tools information page. Note that pruning tools will be added to this information.
- **Landscape Plants**
 - Using the references provided, research the following four types of landscape plants: annuals, perennials, trees, shrubs and ground covers. For each type give a definition, tell how it is used in a landscape and give at least three examples. You may present your information in chart form, as information sheets or any other manner that neatly displays the material.
 - Research and complete the plant identification assignment. You may do this all at once or a bit at a time, but you must complete the plant ID and write an identification quiz to complete this module. Plants are suggested with the assignment, but your instructor may choose other plants depending on what is available to you.
- **Landscape Maintenance**
 - Complete the pruning tools chart.
 - Complete the information on time to prune, parts of the tree and shrub as well as corrective pruning techniques.
 - After observing a demonstration of corrective pruning techniques for trees and shrubs, practice these techniques on plantings at the school or at a residential site.
 - Complete a pruning evaluation.
 - Use your references to research information on seasonal requirements of annual and perennial plantings. Research for the season you are in. This information should include preparation techniques such as cultivating and weeding, soil amending, planting or plant removal and general care of plantings including watering and fertilizing. This assignment should be in conjunction with a planting bed that you are working on and may be presented in chart form, report form, or any other appropriate method of communicating the information.
 - Provide the appropriate seasonal maintenance practices to annual and/or perennial planting at your school and/or a private residence. Choose a small sized area as your time may be limited.
 - Write the landscape quiz.

Floral Design II (AGR308)**TAKE THIS MODULE?**

The floristry industry is an interesting and creative field that offers a wide range of both artistic and business opportunities. This module will explore the industry of floristry and build on the basic skills acquired in "Floral Design I". In this module you will use design principles and skills to create different styles of floral arrangements. Uses of flowers for different occasions will be an underlying focus and the production of wedding flowers will also be incorporated.

Note: This module can be taken at any time of the year but production of seasonal-type items should be coordinated with the calendar if you plan to market and sell the items.

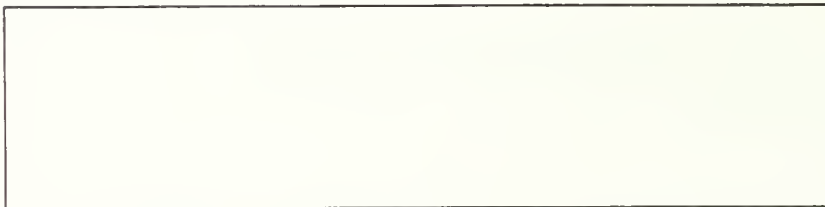
**DO YOU NEED TO KNOW
BEFORE YOU START?**

You should be able to:

- Work effectively and cooperatively with classmates.
- Follow a set of instructions given as part of a demonstration.
- Follow safety rules associated with each activity.
- Research topics using text and periodical materials.
- Identify and use the basic tools and materials of the floristry industry.
- Condition, care for and be able to identify basic flowers used in the business.
- Perform basic design skills including tying a floral bow, making a bud vase and a corsage, and packaging flowers.
- Work with different types of flower material including fresh, dried and fabric.
- Demonstrate a knowledge of the design principles of colour, composition, balance and symmetry, and proportion and scale.
- Perform simple sketches.

**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

- Know the floristry industry, the difference between wholesale and retail, and where many of the wholesale flowers are produced.
- Recognize and demonstrate the proper use of bouquet holders and any other tools and materials used to produce the new designs in this module.
- Identify on site, and know the basic characteristics of, 15 different flowers, flowering plants or tropical foliage plants.
- Research and perform the proper general care of flowering plants and tropical foliage plants.
- Demonstrate the use of previously learned design principles and learn and apply the principles of rhythm and harmony, depth and line, and texture and focal point.
- Use fresh, dried and/or fabric materials to create the following arrangements:
 - horizontal centrepieces with a candle
 - two types of triangular arrangements (symmetrical, asymmetrical)
 - pyramical centrepiece
 - two European style arrangements (presentation/ cluster, vegetative/ parallel)
- Calculate the cost and price of arrangements.

SHOULD YOUR WORK BE DONE?

Floral Design II (AGR308)**WILL YOUR MARK FOR THIS
MODULE BE DETERMINED?**

	PERCENTAGE
You must first demonstrate all of the competencies required for this module. When you have done this, your percentage mark for the module will be determined as follows: • Practical • Theory • Work Ethic	50% 40% 10%

RESOURCES MAY YOU USE?

- *Ornamental Horticulture Principles and Practices* (Ingels)
- *Home Floral Design* (The John Henry Co.)
- *Flowers Canada Accreditation Manual Level I* (Flowers Canada)
- *The Houseplant Expert* (Dr. D.G. Hessayon)
- *Florist Review* (periodical)

1. The Floristry Industry

- 1.1 Using your references, research and perform the following activities related to the floristry industry:
- create a chart that shows the top ten flower-producing countries with the flowers they produce
 - give reasons why cut flower production has grown dramatically in developing countries and give two examples of countries where this has happened
 - using the Yellow Pages, find the names of your local wholesale outlets. If possible visit a wholesale organization.

Floral Design II(AGR308)

- 1.2 Create a chart that shows the major differences between a wholesale operation and a retail florist shop.
Note: You may use some of the information gathered about florist shops from your "Floral Design I" module.

2. Identification

- 2.1 Complete the flower and plant identification assignment. You will require a number of copies of flower and plant identification pages. You should be able to recognize the specimens on site and know the main features of the specimen. Be prepared to write an identification quiz at the end of the assignment.

You may do this assignment all at once or as part of activities throughout the module.

3. Flowering Plants and Foliage Plants

- 3.1 Use the *Houseplant Expert* and the information provided to research the basic care of these plants. Complete the questions in the package provided.
- 3.2 Care for a group of interior plants by applying moisture, fertilizer and pest control as necessary for a minimum of two weeks. You may care for a group of plants in the school or use plants in your home. If you use a group of plants in your home, be prepared to list the plants and/or provide a picture. Keep a record of your maintenance activities in your logbook.

4. Design Principles

- 4.1 Research the design principles of rhythm and harmony, depth and line, and texture and focal point. These principles are in addition to the ones used in "Floral Design I". For each principle, tell how it is achieved in floral design and give an example in the form of a sketch. **Note:** You may demonstrate these principles using one sketch that shows all of them.

5. Design Skills

After viewing a demonstration and filling out a design plan-page, complete the following designs:

- horizontal table arrangement with candle — should be made to fit a specific season
- choose two types of triangular arrangements. Create both types using the same materials for comparison
- hand-tied bouquet. This should be free standing. This skill will take time and practice. Students can use twigs or sticks to practice the technique before using floral material
- presentation bouquet. Discuss its merits and uses
- cascade bouquet. Most popular type of bouquet. Often over-used. Discuss possible alternatives
- complete one European style, showing parallelism, cushion or vegetative style. This project should be carefully presented ahead of time and will require approval of your instructor.

Floral Design II (AGR308)**6. Costs**

Obtain a form used by a local flower shop for calculating costs of arrangements and/or design your own to fit the needs of your class. Remember to include the following items when calculating costs:

- flower and foliage materials (you will need the price per stem)
- hard goods prices, including containers, foam, wrapping, bows
- materials such as glue, wire, floral tape, and pins are usually added into the price as part of the mark-up. You will want to establish a constant amount
- labour will not be counted as much in the classroom as it would be in a flower shop, but you should note how long each arrangement takes and use this as a guide for establishing a labour cost
- overhead is not an issue in the classroom, but would be calculated as part of the mark-up in a flower shop
- price of delivery and GST should also be part of your calculation.

Once you have a form that addresses your needs, calculate the cost and possible price for the items you create in this module.

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